PROPOSED MEASURE OF EFFECTIVENESS FOR HUMAN RESOURCE AVAILABILITY PERIODS AND THEIR IMPACT UPON UNIT OPERATIONAL READINESS

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Proposed Measure of Effectiveness for Human Resource Availability Periods and Their Impact Upon Unit Operational Readiness

by

Raymond Carl Highsmith

December 1976

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The U.S. Navy Human Resource Management Support System (HRMSS) has been in operation in various forms throughout the naval establishment since 1971. To date approximately 50% of the Navy's operational commands have been exposed of HRMSS concepts and practices via the mechanism of a Human Resource Availability (HRAV). At this juncture, however, little has been done to

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20. Abstract (continued)

evaluate the operational impact of the HRAV in those commands that have experienced the process.

This study proposes a methodology with which the effectiveness of the HRAV process as currently used by HRMC/D's can be assessed. The study further proposes a methodology with which to determine the impact of the HRAV on improved unit performance and operational capability. Use of the methodology is anticipated to aid system managers at all levels to evaluate the product as well as to aid future policy and resource allocation decisions for the HRMSS.

Proposed Measure of Effectiveness for Human Resource Availability Periods and Their Impact Upon Unit Operational Readiness

by

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Lieutenant, United States Navy
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ABSTRACT

The U.S. Navy Human Resource Management Support System (HRMSS) has been in operation in various forms throughout the naval establishment since 1971. To date approximately 50% of the Navy's operational commands have been exposed to HRMSS concepts and practices via the mechanism of a Human Resource Availability (HRAV). At this juncture, however, little has been done to evaluate the operational impact of the HRAV in those commands that have experienced the process.

This study proposes a methodology with which the effectiveness of the HRAV process as currently used by HRMC/D's can be assessed. The study further proposes a methodology with which to determine the impact of the HRAV on improved unit performance and operational capability. Use of the methodology is anticipated to aid system managers at all levels to evaluate the product as well as to aid future policy and resource allocation decisions for the HRMSS.

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I. INTRODUCTION

A. THE PROBLEM AND ITS SETTING

The U.S. Navy Human Resource Management Support System (HRMSS), instituted within the Navy in 1971, is essentially a set of programs by which Navy leadership and management personnel at all levels can achieve maximum efficiency and effectiveness in the use of resources to effect mission accomplishment. The HRMSS focuses its effort on the Navy's human resources. It recognizes that if Navy personnel (both military and civilian) are led and managed effectively, the efficient and effective use of material and money will follow as a desirable end. That is to say, if Navy personnel are led and managed effectively there will be a desire among all personnel, as well as appropriate methodology, to want to provide their best performance using all the resources they have at their disposal.

The HRMSS recognizes the importance of the individual. As a desired result of HRMSS application the individual recognizes that the organization of which he is a part is concerned about him as an individual. Because of this and other factors the individual may be motivated to provide his best performance to the organization. Ideally the individual knows his job, recognizes the importance of his job to overall mission accomplishment, and appreciates that he is an important part of the command team.

This situation further allows the Navy man or woman the opportunity to participate fully in the operation of the command to which they may be assigned for duty. Furthermore it allows the individual to rise as high in the organization at large as individual ability and initiative permit.

After two years of development as a formal project under the auspices of the Chief of Naval Personnel, the U.S. Navy Human Resource Management Support System was operationally implemented under the cognizance of the major fleet commanders in chief on 1 January 1974. Prior to this date Human Resource Development Centers (HRDC's) were strategically located at major U.S. Navy concentration points in the continental U.S. and Hawaii. These HRDC's (later Human Resource Management Centers (HRMC's)) were located at Newport, R.I., Norfolk, VA., San Diego, CA., and Pearl Harbor HI. were staffed by officer and enlisted personnel who had formerly occupied normal Navy operational billets.

Initial manning for the HRMC's was accomplished by a careful screening of personnel records. Prospective selectees for HRMC billets were then interviewed to determine their desire to serve in these billets. After selection and interview, personnel who elected to remain in the system were intensively trained to provide HRMSS services to operational Navy commands in one of the five following areas:

1. Original Subprograms of the HRMSS

a. Human Resource Management consisting of:

(1) Organizational Development and Management - to provide commands with assistance of trained specialists in organization development to assist a command in increasing the overall performance of its personnel towards mission attainment and overall command excellence.

(2) Intercultural Relations - to provide commands assistance in formulating local policies concerned with all aspects of operating near or visiting foreign host nations.

(3) Race Relations - to provide command personnel training by conducting Race Relations Education seminars and workshops.

(4) Drug and Alcohol Education - to assist commands to develop, promote, implement, monitor, and evaluate programs in drug and alcohol education onboard.

b. Equal Opportunity:

The U.S. Navy's Equal Opportunity Plan extends the Navy's Affirmative Action Plan of 1971. The plan and its implementation are designed to make the Navy a model of equal opportunity for all, regardless of race, sex, creed, or national origin, while maintaining full effectiveness in the performance of the primary Navy missions.

c. Drug Abuse Control and Alcoholism Prevention:

Affirmation of the Navy's recognition of the social problems of drug and alcohol abuse and its responsibility to actively participate in control and rehabilitation efforts.

d. Career Motivation:

Commitment by the Navy to the goal of greater utilization of its human and physical resources to maintain full effectiveness in the performance of its primary mission and dedication to improvement of the life of every man and woman in the Navy.

e. Transition/Second Career Planning and Assistance:

The provision of individual assistance for a Navy man or woman to make a smooth transition when returning to civilian life from a period of military service. [Ref. 1]

These subprograms were all developed individually and parallel to one another as the leadership of the Navy recognized their significance. They were all brought together under the auspices of the Human Resource Development Project Office in the Bureau of Naval Personnel in 1971. This project office was especially created to bring together the diverse program areas under a central leadership structure.

Upon implementation under the various fleet commanders in chief, and through subsequent development and consolidation efforts, the following related events have occurred:

1. Consolidation of existing HRMC's to Norfolk, VA, San Diego, CA, and Pearl Harbor, HI. Each HRMC is responsible for a specific geographical area under its respective fleet commander in chief.

2. Establishment of HRMC London, U.K. under the cognizance of CINCUSNAVEUR, and the establishment of HRMC Washington, D.C. under the cognizance of a newly created office within OPNAV (OP-01P). The Washington HRMC is primarily responsible for providing HRMSS services to units within the U.S. Navy shore establishment while the London center provides services in the Mediterranean area.

3. Establishment of several local Human Resource Management Detachments (HRMD's) under the operational control of their respective HRMC's. The HRMD's serve the local Navy units in the areas in which they are located.

4. Evolution and subsequent development of the original subprograms to their present form as outlined in OPNAVINST 5300.6B, the U.S. Navy Human Resource Management Support System.

5. Establishment of training media and general personnel requirements to maintain a "pipeline" of qualified officer and enlisted personnel for assignment to HRMC/D and other HRMSS billets.

6. Recognition, after nearly five years of development and operation, that a means is needed to ascertain the impact of the HRMSS in those commands to which it is applied. In

addition, a means is needed to obtain the necessary information for future policy decisions and rational direction of the effort.

B. PURPOSE OF THE STUDY

It was with item 6 in the last paragraph that this study was primarily concerned. Based on informal and unofficial figures supplied by two HRMC's under operational control of CINCLANTFLT and CINCPACFLT respectively, the HRMSS concepts and processes have been introduced and applied in approximately 50% of the operational commands in both fleets. [Ref. 2]

Reference 3 indicates that the average dollar cost of providing HRMSS services to a unit during a Human Resource Availability (HRAV) was $12,484.18 during the period from July 1975 through March 1976. This cost is based on a simple quotient obtained by dividing the HRMC expenses for the period by the total number of units which received services during the period. This average cost might be considered high or low depending upon the point of reference used for comparison - the cost of a restricted material availability for a small combatant, for example.

Assuming that the average cost cited is considered significant, the figure does not include other applicable cost factors. Among these are training for Human Resource Management Specialists (HRM specialists), HRMC/D man hours to provide services to a given unit, man hour costs to the

unit receiving the services, and salaries for HRMC/D support (military) personnel. If a dollar cost figure could be placed on these additional factors, the marginal cost of providing HRMSS services becomes relatively high.

The high cost raises the question of what organizational benefit is being received for the expenditure of resources necessary to provide and receive HRMSS services. Before this question can be answered, however, the more basic question concerning how to evaluate the impact of the HRMSS in the operational units to which it is applied must be addressed.

With respect to the HRMSS, the question of impact evaluation implies two companion and sequentially related questions:

1. The thoroughness and quality with which HRMSS services are provided to a unit by HRM specialists performing the necessary tasks and activities associated with an HRAV.

2. The degree to which unit performance in one or more areas of interest (as indicated by generally recognizable and acceptable performance measures) has been positively or negatively affected by the unit's involvment in an HRAV. The purpose of this study was to provide methodology by which cognizant managers at all levels could obtain answers to these questions. Ability to assess the HRMSS and its impact objectively is an assumed necessity for system managers in order that they be able to effect continual internal improvement of the system through policy and procedure changes. In

addition, ability to assess system impact objectively would aid cognizant managers in efficient allocation of resources.

C. APPROACH

The approach to provide a way to answer the two questions noted above was essentially to consider each question as an entity and then to gather the information necessary to answer each. It was assumed initially that if associated HRAV tasks and activities were not performed well by HRM specialists then the goals and objectives of the system could not be met using this mechanism. The second assumption was that if the HRAV tasks and activities were performed adequately the corresponding change in unit performance would be more dramatic in those units having experienced the HRAV than in those units which had not had the experience.

To obtain information to answer the question concerning how well the HRAV tasks and activities were performed, a key consideration was whether or not one could discriminate on particular criteria among those units that have done "well" and those that have not. Lacking specific information on which to base such a discrimination it was necessary to devise an information gathering mechanism. It was recognized that two primary sources of data existed from which the desired information could be obtained. These were the Human Resource Management Support Team (HRMST) which provided HRAV services to a given unit and the commanding officer of the unit receiving the services.

It was assumed, without validation at this point, that a set of questions could be asked of both parties which would reveal the perceptions of each concerning how well the activities were performed. On the one hand, the HRMST could be asked how well they thought they performed in conducting the various HRAV associated tasks and activities. On the other, the HRMST perceptions could be checked by asking essentially the same set of questions of the commanding officer in whose unit the activities were performed. The idea behind this approach was that if the HRAV associated tasks and activities were performed well or even just adequately then the two sets of answers to the same questions would be essentially the same. Alternatively, if the two sets of answers were materially different (as determined by the total scores for each set of questions or for individual questions in the set), then the HRMC would have information with which to begin more detailed investigation of why the answers were so different and thereby be able to improve the services provided to operational units.

To obtain information to answer the question of HRAV impact on unit performance, raw data were acquired in two generally recognized and accepted performance indicator areas. These were retention data and scores achieved by several units for Annual Supply Inspections. The units for which the data were obtained were all under the administrative control of the Commander Naval Surface Forces, U.S. Pacific Fleet. The period of observation was from July, 1974 through March, 1976.

The retention and inspection score data were obtained for the same units and for the same time period where possible. The units for which the data were obtained were then divided into two groups, those who had participated in an HRAV (the experiment group) and those who had not participated in an HRAV (the control group).

The assumption behind this effort was that those units which had experienced an HRAV would evidence significantly greater improvement in these areas (by comparison of inspection scores attained or percentages of eligible personnel reenlisted for two observations, one before the HRAV and one subsequent to the HRAV) than those units in the control group. It was thought that comparison of results in this fashion would indicate the degree of HRAV impact on unit performance.

The questions and the approach to their answers as outlined in the foregoing paragraphs suggested two distinct and testable hypotheses:

1. Comparison of evaluation questionnaires completed by an HRMST and by the commanding officer of the unit for which the HRMST provided HRAV services at the end of the HRAV period will show no significant difference in total response scores for the entire set of questions asked of each party.

2. The degree of performance improvement will be significantly greater, statistically, for the experiment group than for the control group when comparing performance

for both groups over two consecutive observations timed such that the HRAV's for the experiment group falls between the observations.

Testing these hypotheses by use of the approach outlined above was both the purpose and the focus of effort for this study.

D. LIMITATIONS AND CONSTRAINTS OF THE STUDY

Lack of available specific information with which the questions of HRAV quality and unit performance impact could be answered limited the study to the determination of a feasible approach with which the questions could be answered. Though a feasible approach was determined (as will be shown), it was based on many assumptions derived from the author's own experience as an HRM specialist assigned to HRMC Norfolk, VA during the period from November, 1972 through August, 1975. Inasmuch as the assumptions are stated where necessary in this report, the reader will be able to understand how the conclusions of the study were arrived at. However, the assumptions should be viewed with the skepticism that they reflect the perceptual biases of the author. As such, they should be verified if more rigorous development of the approach offered herein is attempted.

Because of time and resource constraints the data samples used to test the two stated hypotheses were, of necessity, smaller than those which might normally be required for rigorous statistical analysis. Since this study was confined to determining an approach for assessing HRAV quality and

impact it was assumed that the sample size used was adequate to reveal how the approach might be implemented. However, the conclusions to which the analysis done for this study lead (based on the small samples used) might also be viewed with skepticism and should be verified by more rigorous and independent research.

The data used to test the two hypotheses were, of necessity, from different sets of units. Questionnaires designed to ascertain how well HRAV tasks and activities are done were used on a trial basis by the HRMC's at Norfolk, VA, San Diego, CA, and Pearl Harbor, HI and their subordinate HRMD's between 1 May and 31 July, 1976. The data for the units to test the second hypothesis covered the earlier period indicated above. For these units, it was impossible to determine whether or not the HRAV was done well. Similarly, for the units selected to test the first hypothesis neither retention data nor Annual Supply Inspection scores were available for the period of observation. Because the data used to test the two hypotheses were from different units and different time periods direct association between how well an HRAV is accomplished and its ultimate impact on unit performance was not attempted in this study. It was thought, however, that such an association could be made following accumulation of sufficient appropriate data by use of the basic approach offered in this study. This work is left to future researchers.

E. A NOTE CONCERNING HRMSS ORGANIZATION

To assist the uninformed reader to understand the HRMSS more clearly, Figures 1 and 2 below show the HRMSS organizational relationships and the organization of a typical HRMC in simplified form respectively.

HRMSS ORGANIZATION

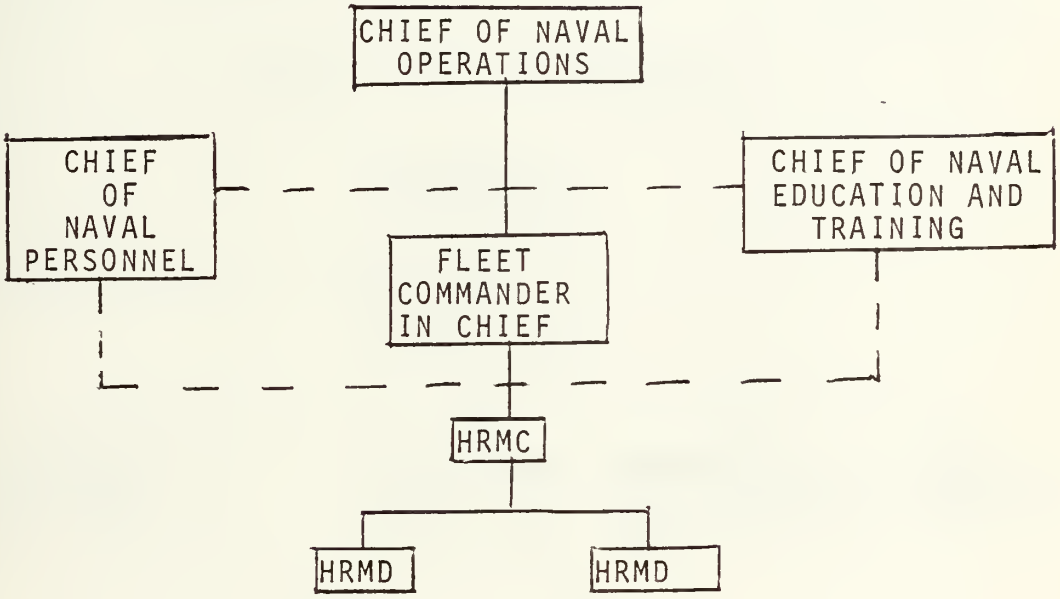


Figure 1

The direct line relationships shown in Figure 1 are self evident. Of interest is that the HRMC's are "third echelon" commands under the respective fleet commanders in chief. This is indicative of the inportance attached to the HRMSS by Navy leaders.

The respective roles of the Chief of Naval Personnel and the Chief of Naval Education and Training with respect to the HRMSS are supportive in nature. The Chief of Naval Personnel specifies billet requirements and personnel

qualifications for the several HRMSS job classifications. In addition, personnel are ordered into HRMSS billets by the Chief of Naval Personnel. The Chief of Naval Education and Training provides the initial training required for personnel order to fill HRMSS billets.

Each HRMC is a command entity. Typically the HRMC is organized as depicted in Figure 2 below.

TYPICAL HRMC ORGANIZATION

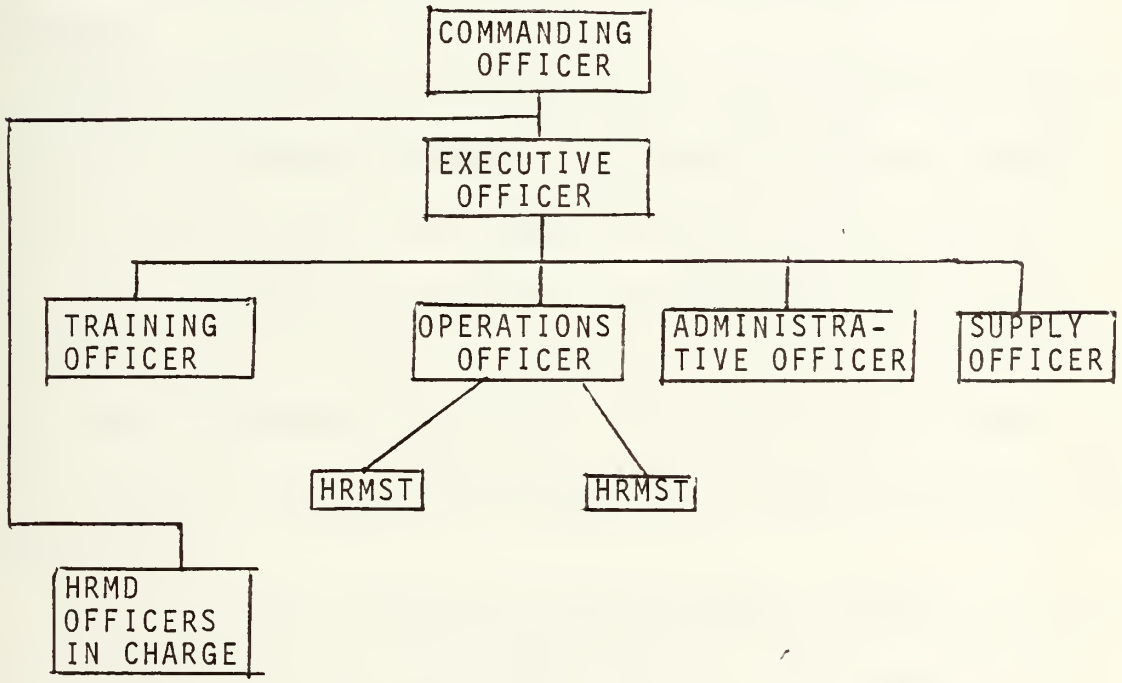


Figure 2

The functions of the department level officers below the Executive Officer level are suggested by their respective billet titles. The largest number of personnel assigned to HRMC's serve as HRM specialists organized into several Human

Resource Management Support Teams (HRMST's). It is the HRMST which actually provides HRAV services to operational Navy commands.

F. SUMMARY

The HRMSS development, implementation, and operation is an ongoing effort of nearly five years duration. It seeks to assist Navy leaders and managers at all levels to achieve the best use of their available resources. This is accomplished by focusing on the Navy's people as individual human resources.

HRMSS services are provided to operational Navy commands by specially trained personnel assigned to several strategically located HRMC's and HRMD's under the cognizance of the major fleet commanders in chief. Subsequent evolution and development has resulted in the present form of the HRMSS as described in OPNAVINST 5300.6B. At present one of the needs of the system is the establishment of a means to assess HRMSS effectiveness.

The marginal cost of providing HRMSS services to commands using the mechanism of the HRAV is relatively high if one considers alternative uses for available funding. The high cost raises the question of organizational benefit received from the expenditure of resources necessary to provide HRMSS services. This question leads, in turn, to two companion and sequentially related questions concerning how well associated HRAV tasks and activities are performed and impact of the HRAV on a unit's operational performance.

An approach to provide answers to these two questions is offered. The questions are reformed into two distinct and testable hypotheses:

1. Comparison of evaluation questionnaires completed by an HRMST and by the commanding officer of the unit for which the HRMST provided HRAV services at the end of the HRAV period will show no significant difference in total response scores for the entire set of questions asked of each party.

2. The degree of performance improvement will be significantly greater, statistically, for the experiment group than for the control group when comparing performance for both groups over two consecutive observations timed such that the HRAV's for the experiment group fall between the observations.

The testing of these hypotheses with the approach offered by this study was both the purpose and the focus of effort for the study. Considering certain limitations and constraints of the study the results obtained should be viewed skeptically. It is anticipated, however, that more rigorous development of the approach will yield a way for system managers to realistically and objectively evaluate the effectiveness and impact of the HRAV, and having such information will aid managers to make future policy and resource allocation decisions for the HRMSS.

II. BACKGROUND

A. OVERVIEW - THE BASIC STRUCTURE OF THE HRMSS

Currently, the elements that comprise the HRMSS are organized into three major categories:

1. Human Resource Management, including leadership and management and overseas diplomacy,

2. Equal Opportunity/Race Relations, and

3. Drug Abuse Control and Alcoholism prevention.

These three components are the evolutionary and developmental results of the original five programs alluded to in the first chapter of this report. Though each of the three components focuses on a rather narrowly defined subset of potential socially oriented problem areas, improvement is sought in all three areas for the same ends of improved performance and more effective mission accomplishment both at the unit level and, as a result, throughout the Navy at large.

The primary mechanism by which HRMSS concepts and practices are introduced into operational Navy commands is the Human Resource Availability (HRAV). The HRAV is a period of time, usually of one week's duration, set aside for a unit's leaders to examine, in depth, their own leadership and management practices. The HRAV for a given unit is scheduled by the fleet commander in chief having operational control of

that unit, and it becomes part of the unit's normal employment schedule. During the HRAV, the unit is supposedly free of all other operational commitments so that the time can be spent exclusively in examination of its internal practices with respect to its human resources and with a view toward improvement of those practices. Normally each unit is assigned an HRAV once during each training cycle. The training cycle is defined roughly as a period of 18 months to two years.

After a unit is assigned an HRAV, the commanding officer of the unit is contacted by personnel from the nearest HRMC or HRMD approximately four to six weeks prior to the scheduled period. An initial meeting is arranged between the unit commanding officer and personnel from the HRMC/D. At this meeting, the HRMSS and its requirements are fully explained to the commanding officer, and the role of the HRMC/D as a source of assistance to him is established.

Following initial contact, a schedule is arranged, usually with the unit's executive officer, for administering the U.S. Navy Human Resource Management Survey to all personnel assigned to the unit. Unit personnel are divided into groupings which correspond as closely as possible to their normal daily work groups. For example, all Radioman personnel working in a ship's communications spaces would be assigned to the same grouping for the purpose of the survey. Each such grouping is assigned a unique code for

later computer output identification. At the appointed time, the survey is administered - usually onboard the unit assigned the HRAV.

After the survey is administered, completed answer documents are returned to the HRMC for computer processing. Survey administration and processing generally occur approximately three weeks prior to the scheduled HRAV period.

The processed survey data are returned to the origniating HRMC/D for analysis by the leading HRM specialist assigned to provide services to the unit scheduled for the HRAV. By his analysis, he determines general areas which might be of concern to the unit's commanding officer (including areas wherein unit personnel perceive the command to be performing well). Survey data analysis may be performed by personnel other than the assigned leading HRM specialist, but his is generally the responsibility to ensure that the analysis is done.

The analyzed survey data are returned to the unit's commanding officer - only. One of the major strengths of the HRMSS is its recognition that the local commanding officer is probably the best judge of what occurs within his command, and that he is probably in the best position to take whatever action may be necessary. HRMC/D personnel assigned to provide HRAV services to Navy commands are therefore constrained, by specific direction in Ref. 4, to maintain whatever information they receive about a particular command

in the strictest of confidence. No reports concerning a command are made to anyone except the commanding officer of that command.

Having received the survey data for his command, the commanding officer is invited and encouraged to interpret the results with respect to his unique position and knowledge of what his assigned personnel are really trying to say in their aggregated responses to the survey questions. Presumably the survey results highlight general areas of possible concern which the commanding officer might wish to investigate further. Feedback of survey results to the commanding officer generally occurs in the second week prior to the scheduled HRAV period.

Armed with the survey results and other pertinent information, the unit commanding officer is now in a better position to decide how to use the scheduled HRAV period to best advantage for his command. Approximately one week prior to the scheduled HRAV period, the assigned HRM specialist meets with the commanding officer to plan and perform detailed scheduling for the specific activities to be conducted during the HRAV. For example, one of the survey results might indicate that nonrated personnel, as a group, do not think that senior command personnel listen attentively when information originates in the subordinate levels. One of the HRAV activities might then be to provide training for senior personnel in communications with subordinates.

It is emphasized that whatever activities occur during the HRAV, they are under the complete control of the commanding officer. HRMC/D personnel are assigned to assist him in implementing his own program of planned improvement and not to impose a program of "canned" activities designed to fill a week's time. Realistically, HRMC/D personnel can and do offer certain "canned" activities which have been specifically developed for implementing HRMSS concepts within a command. For example, there are several workshops available which deal in specific areas such as racial awareness, drug and alcohol abuse education, communications, overseas diplomacy, planning and problem solving, etc. Some of these specific activities are required by the governing instructions; however, no instruction requires that particular activities be conducted specifically during the scheduled HRAV period.

The scheduled HRAV period is generally used by the command to begin to effect improvement in those areas identified by the information acquisition and planning activities done prior to the scheduled period. For example, one of the results of the HRAV might be the completion of an action plan with which the command can address and solve its now specifically identified areas of potential improvement.

On completion of the HRAV, frequent contact between the HRMC/D and the command ceases. Presumably the command now has the capability to continue its program of planned improvement without benefit of further HRMC/D involvement.

If further HRMC/D assistance is required, it can be made available to the unit commanding officer consistent with his desires and the availability of HRMC/D assets.

From the foregoing description of the HRAV process, the basic structure of the HRMSS can be visualized as consisting of the three components shown in Figure 3 below.

HRMSS BASIC STRUCTURE

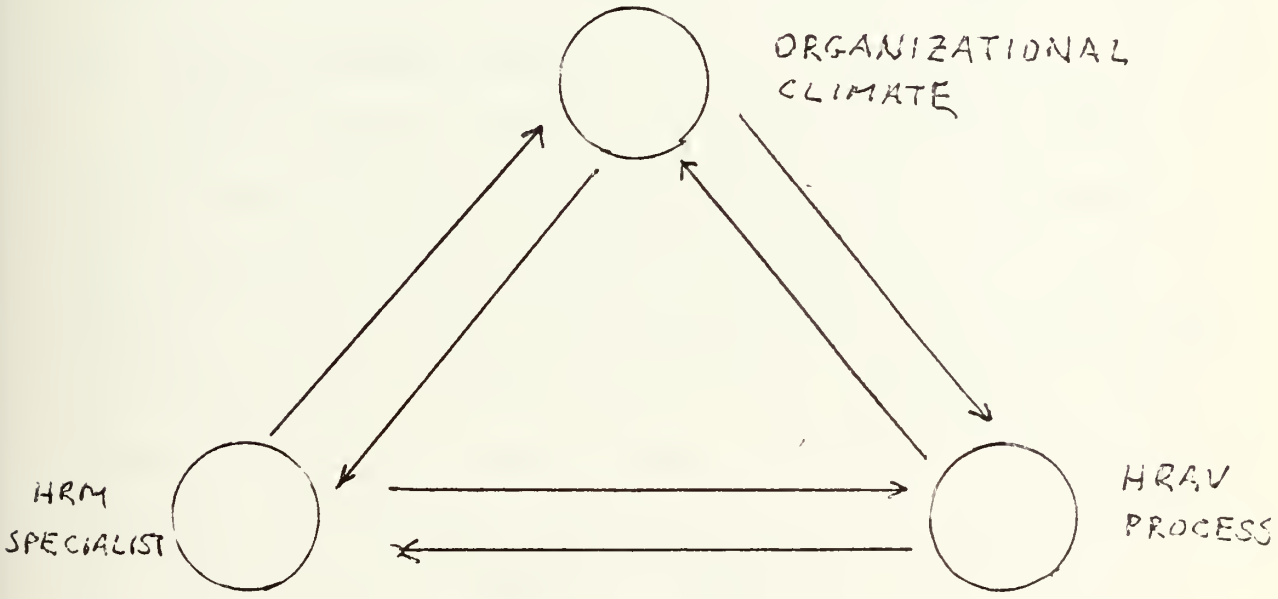


Figure 3

As the diagrams shows, each node is related to and is affected by each of the others. The HRM specialist must have something to offer, and he must be able to offer it in whatever situation he finds prevailing within the organization to which he is assigned. What the HRM specialist does is determined to

a degree by the existing organizational climate of the command, and this, in turn affects the HRAV process used in that command.

The HRM specialist uses the HRAV process to affect the organizational climate in the command receiving the services such that ultimate organizational improvement results. The balance of this chapter examines each of the components in some detail, and it provides a brief description of the relationship between the HRMSS and the Navy command structure.

B. ORGANIZATIONAL CLIMATE

Organizational climate is a term used to describe, simply, the entire set of essentially social conditions existing within an organization - in this case, a Navy command. It is a term which defies definition, though many researchers have attempted to provide a definition. For example, in Ref. 5, Bennis states, "I mean by 'climate' a set of values or attitudes which affect the way people relate to each other such as 'openness', authority patterns, social relationships, etc." Reference 6 indicates other researchers' attempts to define organizational climate. Argyris equates organizational climate with organizational culture, the set of beliefs, values, and norms that constitute blueprints for behavior. Halpin and Croft use the metaphor of personality in their study of the organizational climate of schools. Halpin's definition of organizational climate is based on the following description of his findings:

"Anyone who visits more than a few schools notes quickly how schools differ from each other in their 'feel.' In one school the teachers and the principal are zestful and exude confidence in what they are doing. They find pleasure in working with each other; this pleasure is transmitted to the students, who are thus given a fighting chance to discover that school can be a happy experience. In a second school the brooding discontent of the teachers is palpable; the principal tries to hide his incompetence and his lack of a sense of direction behind a cloak of authority, and yet he wears this cloak poorly because the attitude he displays to others vacillates randomly between the obsequious and the officious. And the psychological sickness of such a faculty spills over on the students, who in their frustration, feed back to the teachers a mood of despair. A third school is marked by neither joy nor despair, but by hollow ritual. Here one gets the feeling of watching an elaborate charade in which teachers, principal, and students alike are acting out parts. The acting is smooth, even glib, but it appears to have little meaning for the participants; in a strange way, the show doesn't seem to be 'for real.' And so , too, as one moves to other schools, one finds that each appears to have a 'personality' of its own. It is this personality that we describe here as the 'Organizational Climate' of the school. Analogously, personality is to the individual what Organizational Climate is to the organization."

Evan offers the definition that, "Organizational Climate is a multidimensional perception of the essential attributes or character of an organizational system."

Finally, in Ref. 7, Bowers cites Likert's concept of organizational climate:

"There is in the concept of the organization the notion of a flow of events, from causal conditions through intervening processes to end results. An adequate understanding of the organizations's systemic nature requires that we understand this flow for any separate group and for all groups as they exist in a constellation making up the whole. If groups in an organization were not interconnected, we could simply sum up their separate properties and have an understanding of the whole. In fact, however, end results from some groups form causal inputs for other groups; thus the flow of events is from group to group, as well as within any one.

> For the single group, two basic types of causal characteristics are given preeminent status in Likert's thinking: managerial behavior and those organizational conditions which reflect the basic structure of expectations, roles, policies, and practices of the organization as they relate to a particular group. These conditions are described in terms of the extent to which there is a structure of groups with overlapping membership, the extent to which information flows easily and accurately in all directions, the degree to which there is coordination among separate operations and units, the degree to which there is a participative decision-making structure, and the extent to which motivational forces generated within the system are positive and mutually reinforcing, as opposed to negative and conflicting.
>
> More recently the term 'organizational climate' has been applied to this array of conditions which affect the basic life of the group and which flow to the group's milieu from the output of other groups, particularly those above it in the hierarchy."

Implicit in all these definition is the idea of the feeling one gets when participating in or observing an organization. The word "feeling" poses yet another definitional problem since what one feels is largely the result of his application of his own prior experiences and conclusions to the current situation in which he finds himself. Similarly, there is the definitional distinction between "thinking" and "feeling" to be reckoned with. That is, is thought based on feeling, or is the reverse true? Though answers to such questions have been proposed, there does not appear to be much agreement about one answer which is applicable in all situations. Similarly, there does not seem to be much agreement on one general definition of organizational climate.

With the respect to Navy commands, each can be viewed as an organizational entity, and each, therefore, has its own organizational climate. The passages from Halpin's and Likert's work cited above come closest to the author's experience as an HRM specialist. One could work in ships of the same class and at the same location which were alike in every major respect except for their assigned personnel, and one would find different situations in each case. The same was true for aviation squadrons within the same administrative organization such as an aviation wing, and at the same location.

At a somewhat lower level, and also within the author's experience as Engineering Officer in one ship, this same phenomenon was observable. Of two identical sets of boiler room and engine room combinations, one seemed always to perform magnificently; whereas, the other always seemed to be plagued by unforeseen problems. Again, the only thing different about these two sets of engine spaces was the assigned personnel.

As a third example, in the same ship the author observed that two heads of department did not get along particularly well with one another. Though their arguments were never conducted in the presence of enlisted crew members, one could readily see a distinct lack of cooperation among lower level personnel in each department where their work caused them to interface.

From these experiences, and extrapolating from the representative definitions cited above, it is hypothesized (without proof) that organizational climate is a function of the attitudes and personalities of the personnel assigned to a particular unit. It is further hypothesized (without proof) that senior personnel can then more readily determine what the climate of the organization of which they are a part will be by virtue of their positional authority and their corresponding ability to influence those who occupy lower hierarchial positions.

Though organizational climate cannot be specifically defined, its effects can be observed in the way a command or its subdivisions performs its mission and tasks respectively. Furthermore, its effect can be determined in the way personnel talk during an interview or answer certain questions in a written survey.

It is this rather nebulous factor which the HRM specialist attempts to affect by using the HRAV process. His assessment of the initial organizational climate in the command to which he is assigned is one of the main factors in the success or failure of HRMSS application to a Navy command.

C. THE HRAV PROCESS

The generalized steps of the HRAV process, by which HRMSS concepts are introduced into an operational Navy unit, were outlined in section A of this chapter, and they need

not be repeated here. Suffice to say that each of the steps is important to the success of the entire effort, and they must be accomplished sequentially in a building process of which the scheduled HRAV period is the final result.

In one respect, the initial contact between the HRMC/D and the commanding officer of the unit scheduled for an HRAV is perhaps the most important part of the sequence. As indicated above, the entire concept of the HRMSS is based on assistance to a commanding officer; that is, HRMC/D personnel come onboard his command to help him. Generally, the initial contact is made by one of three personnel from the HRMC/D - the commanding officer or officer in charge of the HRMC or HRMD respectively, the team leader of the Human Resource Management Support Team (HRMST) assigned to provide service to the command scheduled for the HRAV, and the leading HRM specialist who will have primary responsibility for conducting the HRAV for that command.

At this meeting, which occurs approximately four to six weeks prior to the scheduled HRAV period, the concepts and requirements of the HRMSS are explained to the unit commanding officer. In addition, he is apprised of the specific services which the HRMC/D is prepared to provide. Sometimes, the HRM specialist's gathering of pertinent information concerning the unit's organizational climate is begun at this point by asking leading questions of the commanding officer such as,

"What do you think about the command, in general?", or, "If you could change anything in the command, what would you change?"

Most importantly, it is at this first "face-to-face" meeting that the beginning of rapport between the HRMC/D and the command scheduled for the HRAV is established. Every attempt is made to assure the commanding officer that the HRMC/D role is that of assistance only - assistance as opposed to inspection. Similarly, every effort is made to persuade him that any improvement program that results will be generated within the command by command personnel, and it will be under the complete control of the commanding officer.

The commanding officer's behavior and displayed attitude during the initial meeting can range from complete skepticism to genuine enthusiasm. For him, it is completely a "free play" situation. If he evidences enthusiasm, subsequent activities will generally be easier for the HRM specialist to perform. If skeptical, the challenge is to the HRM specialist(s) to enable him to see the possible benefit to his command of participation in the HRAV and its associated activities. Here, it must be remembered that there is no formal requirement for the command to do anything at all during the scheduled HRAV period.

Assuming that the initial contact is successfully accomplished, as evidenced by the commanding officer's willingness to proceed even though he may not yet fully

understand the HRMSS, its concepts, or its possible implications for his command, the next several steps of the process are primarily concerned with administration of the Human Resource Management Survey to personnel in the command. Like the initial contact, this phase of the process is important in its own right as well as its being necessary to the success of the entire effort.

The survey is a document of two separate and distinct forms. One is used to assess the perceptions of operational units afloat and ashore and is geared primarily to military personnel. The other is used to assess the perceptions of shore based support facility personnel and is geared primarily to civilian personnel. The two documents contain different numbers of questions, and some of the questions contained in the two forms are of slightly different types. However, the purpose of both documents is essentially the same, each seeking to assess aggregate perception of the organization by its assigned personnel. The following discussion relates to the form used in operational units, but they apply as well to the other form. Where the two forms differ, the differences are not conceptual. They are, rather, in the numbers and types of questions asked only.

The HRM Survey is a document consisting of a core of 88 questions of the form, "To was extent is this command interested in the welfare and morale of assigned personnel?" Respondents answer each question by choosing one from among the five possible answers indicated below.

1. To a Very Little Extent
2. To a Little Extent
3. To Some Extent
4. To a Great Extent
5. To a Very Great Extent

In addition to the 88 core questions, the option is available to the commanding officer to add up to 30 additional questions of his own and to tailor them specifically to his command. The additional questions, if used, are written in the same format as the core questions, and their results are included in the computer print of survey results. The core questions constitute an adaptation of Likert's "Survey of Organizations" [Ref. 8] tailored to U.S. Navy application.

The arrangements for administration of the survey are usually made by the command's Executive Officer and the leading HRM specialist assigned to the command. The crew is divided into coded groupings that correspond as closely as possible to the normal work groups to which the command's personnel are assigned. Through this coding and the computer program with which the survey is processed, areas which might be of interest to the commanding officer can be localized to the group or groups who express concern in those areas by their aggregated answers to survey questions. Similarly, the crew is divided into other demographic groupings such as age, educational background, time in the command, time in the Navy, paygrade, marital status, racial and ethnic background, etc.

This is done for the same purpose of being able to localize possible areas of concern to those groups who express the concern. By such groupings, the unit's commanding officer is afforded a wide choice of data that he can obtain by judicious choice of computer prints based on these groupings or combinations of these groupings. This capability ensures that the data he receives will be specifically oriented to his command and will be of a quantity necessary to provide only meaningful or potentially useful information.

After these arrangements are completed, the survey is administered to as many of the command's assigned personnel as possible consistent with time and other resource constraints such as space requirements and availability of personnel on leave or otherwise engaged. The purpose of what they are doing is explained to them either by senior personnel in the command (i.e., commanding officer, executive officer, or other designated representative of the commanding officer) or by the HRM specialist administering the survey. Here, again, an opportunity exists for the HRM specialist to gather some information about the existent organizational climate. If senior command personnel administer the survey, what remarks do they make specifically, and how are they delivered (for example, are the remarks made enthusiastically or with sarcasm)? Alternatively, if the HRM specialist does the explanation (with prior permission of the commanding officer), has he been restricted with respect to what he may explain

concerning the purpose of the survey? Another indication of the existing organizational climate are the questions and/or the "aside" comments generated by crew members throughout the survey administration process.

One important aspect of administration of the survey is that the answers made to survey questions by individual respondents are held in the strictest of confidence. Nowhere is the respondent asked to indicate his name or other identifying information such as his Social Security Account Number. Also, a protective feature exists in the computer processing program that deletes the printing of responses for any subgroup in which there are less than three respondents. This groups answers would be aggregated elsewhere with those of larger groupings (such as the entire command group), but they would not be shown as an identifiable group by themselves. This feature applies to the groupings that correspond to the normal work groups as well as to other demographic groupings for which information might be desired. This "confidentiality" of individual responses is a design feature of the HRMSS used to elicit honesty in the answers provided by individuals in completing the survey. The assumption behind the need for honesty in the responses is that if the survey answers are not honest, they can cause the results of the survey to be erroneous, and any subsequent action taken might be misplaced; thus wasting the time and effort of all concerned at best, or causing longer term deleterious effects within the command at worst.

Once the survey administration is completed, the answer forms are returned to the HRMC/D for processing by computer. This results in a printed document which shows the aggregated responses for all the survey questions (individually) averaged for all personnel in the command who answered the questions. Similarly, the aggregated answers are provided automatically by paygrade and racial/ethnic groupings. Other printouts are also available for other demographic groupings or combinations of groupings as desired by the commanding officer.

In the printout, the 88 core questions are arranged in twelve dimensions, some of which are further divided into more specific indexes. These are as follows:

1. Command Climate
    a. Communication Flow
    b. Decision Making
    c. Motivation
    d. Human Resource Emphasis
    e. Lower Level Influence
2. Supervisory Leadership
    a. Support
    b. Teamwork
    c. Goal Emphasis
    d. Work Facilitation
3. Peer Leadership
    a. Support
    b. Teamwork
    c. Work Facilitation
    d. Problem Solving

4. Work Group Processes
    a. Work Group Coordination
    b. Work Group Readiness
    c. Work Group Discipline
5. Satisfaction
6. Integration of Men and Mission
7. Training
8. General
9. Equal Opportunity
10. Drug Abuse
11. Alcoholism Prevention
12. Community Interrelationships

If one refers to the representative definitions provided for organizational climate in section B of this chapter, it will be apparent that all of the headings for survey question groupings except the last four are concerned with some observable aspect of organizational climate. Right, wrong, or indifferent (assuming honesty in the responses) the responses show, on the average, how various aspects of the command are perceived by the personnel in that command at the time that they completed the survey. For example, the survey might indicate a rather negative perception among non-rated personnel as a group that the command is interested in the welfare and morale of its assigned personnel. Whether or not the negative perception is correct, that is how the non-rated personnel saw it at the time they completed the survey. Alternatively, the same question asked of Chief Petty Officers or officer level personnel might elicit a more positive group response. This might indicate their

relative closeness to where decisions are made in the command, their access to greater amounts of information than is normally available to non-rated personnel, or it could indicate that these levels, being more or less responsible for day to day welfare and morale, think they are doing an adequate job in this area.

The example cited in the last paragraph is indicative of the type of analysis done with the survey printout by the assigned HRM specialist. Given his training, his overall Navy experience, his knowledge of the HRMSS and its concepts, and his knowledge of the survey, the analysis he performs will provide information to him concerning possible areas of concern to the commanding officer of the unit to whose personnel the survey was administered. The HRM specialist highlights his findings and then prepares to feed back the information he has gleaned to the unit commanding officer. In some cases, while the HRM specialist is conducting his analysis, an extra copy of the printout document is provided to the commanding officer prior to any information being fed back to him by the HRM specialist. This gives the commanding officer an opportunity to review the data independent of HRM specialist input and to draw his own conclusions based on what he knows about his unit. If he is reasonably well prepared beforehand with format and rationale information for the data contained in the survey printout document, his own analysis might be more effective than analysis done by the

HRM specialist. In any event he can at least become familiar with the data while it is being analyzed.

At some mutually agreeable time the HRM specialist presents a report of his findings as well as any outstanding copies of the survey results to the commanding officer. From the author's experience, this meeting is the second critical point in the process. Again, this is a "free play" situation for the commanding officer. He may agree or disagree with the analysis done by the HRM specialist. He may be surprised and/or displeased at the answers given to some of the questions by the crew or groups thereof: On the other hand, the survey results might only verify what he has already known implicitly, and this too may occasion his pleasure or displeasure.

Assuming honesty of purpose on the part of the HRM specialist, he must be extremely careful in his dealings with the commanding officer at this meeting. The HRM specialist is generally significantly junior in rank to the commanding officer with whom he is dealing. The HRM specialist may or may not have had prior command experience of his own. If he has not, and if the commanding officer is skeptical of the analysis results, it is possible for the HRM specialist to expect an attack on his credibility of the form, "What experience have you had which leads you to this particular conclusion?" In such a situation, the HRM specialist is completely on his own, and he must be able to parry such

attacks, maintain his credibility, and maintain an amicable relationship with the commanding officer. At the other extreme, the analysis might have indicated a generally positive reaction among command personnel to some survey question. In this case, the commanding officer might not evidence too much interest if he is focusing only on the "problem" areas. Here, too, the HRM specialist must exercise care and encourage the commanding officer to examine why the response is positive. Such an analysis might provide the basis for improvement actions in other areas.

In the author's experience, the feedback of survey results to the commanding officer was usually the point in the sequence where that individual really began to think seriously about the HRMSS, its concepts, and its implications for him and his command. If the feedback of information was successful, cooperation and greater enthusiasm for participating in subsequent activities was usually assured. If not, participation by the command in the HRAV was largely mechanical with little interest among the participants in the proceedings.

The next step after feedback of the survey information is the planning of specific activities to be conducted during the scheduled HRAV period. As with feedback of survey information, the role of the HRM specialist as an assistant to the commanding officer is crucial. At this point it would be reasonable to expect the commanding officer to realize that whatever activities are performed are at his behest. It would also be reasonable to expect him to be able to specify

those activities which should be conducted to effect improvement in areas of concern to him.

In the author's experience, these expectations were seldom realized. A commanding officer is an extremely busy person who must organize his concerns in some sort of priority of their importance to the command. The HRAV simply might not have the highest priority. Another possible reason is that he is somewhat overwhelmed by the amount of survey information he has received and has not had adequate time to digest all of it before he is expected to decide on specific activities aimed at improvement. A third possibility is that he may not know what to do to improve a particular aspect of his command, even though he desires to see improvement.

In any event, if the commanding officer is unable or unwilling to specify how the time available during the scheduled HRAV is to be spent, it is incumbent upon the HRM specialist, in his role of assistant to the commanding officer, to be prepared to offer a planned program of activities. In doing so, the HRM specialist must account for the requirements of the HRMSS as well as the perceived needs of the commanding officer for whom he is providing the service. Additionally, it is his responsibility to transfer such skills to members of the crew as are necessary for the command to continue its program of planned improvement independent of HRMC/D involvement. Finally, and realistically, the HRM specialist must be aware that though the scheduled

HRAV period is designed so that the command is free of other operational commitments no such restriction is placed on the periods immediately prior to or subsequent to the HRAV period. In the author's experience, more often than not the unit scheduled for the HRAV was also scheduled for other major evolutions in the periods just before or just after the HRAV, and these evolutions required their own just portions of time from command personnel in preparation.

By whatever method is used for the planning, it is accomplished, and the final step of the HRAV process is the conduct of the planned activities during the scheduled HRAV period. Such activities are generally of three forms:

1. The gathering of specific amplifying information about areas of concern generated by the survey through interview or observation of individuals or small groups.

2. Training activities in the form of seminars or workshops for designated groups of command personnel.

3. Specialized consultive service to particular individuals and groups with specific functions such as the Human Relations Council, Equal Opportunity Program Specialist (if assigned), and other personnel connected with HRMSS related activities or functions within the command.

Of the training activities, there are the "canned" programs already mentioned, or specific training activities may be designed by the HRM specialist or by command personnel to fit a particular situation. The leading HRM specialist

usually has at his disposal several other HRM specialists with particular training and expertise in the various sub-programs of the HRMSS. As a group, these personnel constitute a Human Resource Management Support Team (HRMST). The team's responsibility is to help implement the commanding officer's program of improvement by transferring, through training, necessary skills to command personnel such that the improvement program will be sustained after the HRAV is completed.

In conducting these activities, the HRM specialists must exercise care that they say or do nothing which undermines the commanding officer's authority or prerogatives. They must say or do nothing without his knowledge and/or consent. When unanticipated anomalies occur during the HRAV activities, it is incumbent upon the HRM specialists to keep the commanding officer informed. In short, the HRM specialists must not knowingly, under any circumstances, create expectations among subordinate personnel that conditions in the command are going to change at all. This prerogative belongs to the commanding officer alone and not to the HRM specialist, the HRMC/D, nor the HRMSS. Realistically, it happens occasionally that the very presence of HRMC/D personnel in a command creates expectations among crew members that things are going to change, even though the specialists themselves do nothing to foster this impression. If such is the case, it is incumbent upon the HRM specialists to recognize what is happening and take appropriate steps to rectify the situation, always keeping the commanding officer informed.

The final contact between the HRMC/D and the command scheduled for the HRAV is usually a meeting between the leading HRM specialist and the commanding officer. This meeting is generally concerned with the HRM specialist summarizing what has occurred and what results can be expected. Also, the commanding officer is usually offered the availability of follow-on assistance as desired and as consistent with the availability of HRMC/D assets.

The HRAV process, briefly described here, will vary in detail with application to each command in which it occurs, but the sequence is generally the same for all applications. The variation in detail is dependent on the organizational climate that exists in the command and on the individual style of operating used by the HRM specialist(s) providing the service. The description belies the complexity of the actual operation. The HRM specialist deals with people as individuals and in groups. He must be able to correctly interpret each situation as he finds it and have the ability to respond appropriately such that the command in which he is working derives the greatest benefit. If, through misinterpretation or misguided action he makes a mistake or a faulty judgement, the recovery of lost credibility is difficult at best, and it may be impossible to recover at all.

D. THE HUMAN RESOURCE MANAGEMENT SPECIALIST

As was the case with Organizational Climate, the term "HRM specialist" defies definition that is generally applicable in every situation. However, as in the case for Organizational Climate, external characteristics of personnel assigned to duties in HRM specialist billets can be observed. In an article appearing in the periodic "Officer Personnel Newsletter" promulgated by the Bureau of Naval Personnel in the Spring, 1976 issue [Ref. 9] several criteria for selection of officer personnel to duty assignments as HRM specialists were listed.

> "This (selection)* criteria is applicable to lieutenants and above, and CWO2 through CWO4. Ensigns are not eligible for the program. LTJG's, either unrestricted line or LDO, who have exhibited high quality performance and who are in the next promotion zone may be assigned."

Significant in this statement is the restriction of selection for HRM specialist duties to relatively senior and experienced personnel. The article then goes on to provide more specific criteria for selection of personnel in each grade from Lieutenant through Commander. At each level the words, "be a high quality performer" or some variation of these words appears. Also at the LCDR and CDR levels, the requirement exists that the selectees have had a prior tour of duty in command or have passed selection for command duty. For women in these grades, the criteria for selection to HRM

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*Parentheses mine

specialist assignment are comparable. Similar requirements for selection of enlisted personnel to HRM specialist assignment also exist. They must be in paygrade E5 or above, and they must have demonstrated outstanding performance in their previous work in their ratings. It is seen, therefore, that only high quality and experienced Navy personnel are considered for duty as HRM specialists.

Again, from Ref. 9,

> "Personnel selected to fill billets in the HRM Support System are normally ordered to their new assignment via the Human Resource Management School, Memphis, Tennessee. The curriculum is 12 weeks in duration and includes intensive training in the area of Human Resource Management. Personnel assigned to selected billets in drug and alchohol programs are, in some cases, exceptions to this policy and receive specialized training from other sources. Additionally, Equal Opportunity Program Specialists/Assistants receive training at the Defense Race Relations Institute, Patrick Air Force Base, FL. Personnel who are Human Resource Management School graduates are eligible to become proven Human Resource Management subspecialists."

Reference 4 outlines the type of training received by prospective HRM specialists.

> "This training provides personnel assigned to HRMC/D's and HRM System billets at major staffs and commands with the knowledge and skills required to assist command throughout the HRM Cycle process. This training includes HRM Program concepts and issues, leadership and management skills, survey diagnosis and feedback techniques, and consulting and training skills. Emphasis is placed on skills needed to assist commands in their implementation of the Navy HRM programs through action in leadership and management, overseas diplomacy, Equal Opportunity/Race Relations, drug and alcohol abuse, and other areas identified by command."

Though the foregoing excerpts and comments generally describe how personnel are selected and trained for duty as HRM specialists, they say nothing about the individual characteristics of the personnel so selected and so trained. One former commanding officer of an HRMC put it this way.

> "Consultancy is not a well known or well understood Navy duty. It is not precisely training and it is not precisely expert advisor. It requires a calm, even-tempered personality; higher than average analytical ability; mastery of a large body of specific information; and above all, the finest appreciation for the Navy operational organizations and relationships among different levels within the command structure. The consultants work with the leadership in commands to assist the leaders in developing their own improved management techniques, communications skills, problem solving ability, and understanding of broad Navy programs. The consultant is not inspector, not instructor, and not expert. He is a bit of each but mostly he is an interested, enthusiastic, articulate, and trusted aide to officers, CPO's, and PO's within a command. He's a bright guy (or gal) with some special skills who wants to help in any way the command sees as appropriate." [Ref. 10]

E. HRMSS INTERFACE WITH THE NAVY COMMAND SYSTEM

With respect to Figure 3, the preceding three sections of this chapter have attempted to describe the three major components of the HRMSS basic structure - organizational climate, the HRAV process, and the HRM specialist. All three components must interact, and each is affected by the others. All must work in concert if the objectives of the HRMSS are to be realized. The description provided, however, applies to the micro-level; that is, it applies to the individual command. The HRMSS is designed for application throughout

the entire Navy, and it is designed to be of benefit to the entire Navy. How then is all the effort applied in individual units tied together such that the Navy as a whole can be shown as receiving benefit?

Reference 4 again provides guidance in answering this question.

> "Accountability for command performance in support of HRM will occur in three ways:
>
> 1. Commanders and commanding officers will periodically review, assess, and revise their Command Action Plan (CAP) and their Equal Opportunity Affirmative Action Plan (AAP) as directed... This internal command assessment insures that unit action meets the needs and priorities of the unit while supporting improved Human Resource Management;
>
> 2. Immediate superiors in command will assess subordinate performance in support of the Navy HRM system as part of their normal command inspection and evaluation functions;
>
> 3. The Navy Inspector General will periodically conduct formal evaluations in accordance with ... Enclosure (6) (to Ref. 4)* provides those commands whose type commanders and/or immediate superiors in command (ISIC) have not promulgated assessment procedures with an HRM System self-assessment guide, and provides the basis for development of formal evaluation criteria."

Elsewhere in the instruction, specific responsibilities are outlined for major second and third echelon commanders in order to exercise control over the application of the HRMSS. For example, the Chief of Naval Operations (CNO)

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*Parentheses mine

provides overall policy coordination, planning, development, and monitoring of the entire HRMSS. The Chief of Naval Education and Training (CNET) is directed to sponsor, coordinate training policy, and provide planning guidance for HRM training support. Fleet commanders in chief are responsible for implementing, supporting, and maintaining the HRM program elements in all commands under their cognizance. Similar responsibilities are detailed for other appropriate senior management personnel.

Finally at the base of the entire system,

> "All commanders and commanding officers shall develop, implement, monitor, and evaluate a Command Action Plan (CAP) upon completion of a Human Resource Availability (HRAV). Within the CAP are addressed problem areas, issues, and goals in human resource management, drug abuse control, and alcoholism prevention as well as other issues developed within the command. In accordance with..., forward deployed units and overseas shore activities will also address problem areas and issues regarding overseas diplomacy in their CAP. HRMC/D's will provide assistance as consistent with their missions and as identified by a command, but each command and commanding officer is responsible and accountable for the content, quality, and accomplishment of the CAP." [Ref. 4]

Similarly,

> "All commanders and commanding officers will also develop, implement, monitor, and evaluate an Affirmative Action Plan (AAP). AAP's will consist of initiatives developed by the command to insure equal opportunity, to take action to counter racism, and to promote understanding and acceptance of cultural expression in the Navy. Assistance in developing AAP's is available through the Navy Equal Opportunity/Race Relations Program and human resource management centers and detachments. AAP's may be incorporated as a distinct section of the CAP." [Ref. 4]

Though the foregoing description is brief, one gets the impression of an entire and complete management system. Assuming that each command at the base of the system meets the minimum requirements and that the specific responsibilities of upper echelon leaders are discharged, then, ideally, the entire Navy should derive benefit from the HRMSS and be improved thereby. Unfortunately, in the author's opinion, the guidance of Ref. 4 is no specific enough to determine just what benefit is to be received. Also unfortunately, any amplifying instructions that have been promulgated by subordinate echelons and which detail the benefit to be received and how it is to be measured were not available to the author.

F. SUMMARY

This chapter has been included to provide background information for what follows to the uninformed reader concerning the basic structure of the HRMSS. The descriptions provided are based solely on the author's experience as an HRM specialist and various official documents or other published literature.

The HRMSS is essentially comprised of three major components which are organizational climate, the HRAV process, and the HRM specialist. Each component must interact with the others, and each is affected by the others. The entire system is tied together in a hierarchical management structure with specific responsibilities detailed for each level.

Presumably, the Navy at large realizes some benefit from the application of the HRMSS. However, just what the benefit is and how it is measured (or how it should be measured) are unclear. The next several chapters describe the author's attempt to provide a way to assess the impact of the HRAV in the units that participate.

III. STATEMENT OF THE PROBLEM

A. OVERVIEW - HRMSS EVALUATION REQUIREMENTS

As indicated in the Introduction, the marginal cost of providing HRMSS services to one command via the HRAV process is relatively high in terms of dollar value when one considers alternative uses for funding. By way of comparison, however, the total annual cost of operating the entire HRMSS is relatively insignificant with respect to the total annual personnel-related costs of the Department of the Navy. [Ref. 11] For example, if the $12,000.00 unit cost figure (without consideration of additional related man hour costs) cited in the Introduction is assumed to be reasonably accurate, and if a typical HRMC is assumed to be capable of providing HRAV's for 120 units annually, then the total annual cost of operating an HRMC is approximately $1,500,000.00. Given that there are five HRMC's in the system, the total annual operating costs for providing HRM services to operational units equal approximately $7,500,000.00.

References 3 and 12 indicate that the current annual HRMC operating costs are approximately $2,000,000.00 each, that total annual HRMC operating costs are approximately $10,000,000.00, and that the HRMC is capable of providing HRAV services to approximately 170 fleet and shore units annually.

The fiscal 1977 defense budget of approximately 112 billion dollars depicts the Navy's portion as roughly one third of the total or $38,685,000,000.00. Of this amount, approximately $12,000,000,000.00 are direct or indirect personnel costs. Comparing the total annual operating costs of the HRMC's to the total annual Navy personnel costs, one sees that the annual operating cost of the HRMC's is only roughly 1/1000 of the total personnel costs.

This seems a small price to pay in order to meet the objectives of the HRMSS. Furthermore, it seems to be a worthwhile expenditure if the HRMSS objectives are being met. Even though annual operating costs for the HRMC's are small, they do constitute monies which could be applied to other uses such as operation and maintenance. The crucial question then is that of whether or not the HRMSS objectives are being met, such that even so small an expenditure is justified. The following example illustrates the magnitude of the problem one encounters in attempting to answer this question.

Paragraph five of OPNAVINST 53000.6B [Ref. 4] lists the eleven objectives of the HRMSS. The first objective appearing in the list is, "Improved unit readiness and operational capability." Taken as given without analysis, this objective is at least recognizable as worthy of the efforts of all Navy men and women. Examined in more detail,

however, exactly what constitutes improved unit readiness and operational capability is unclear. Improved unit readiness suggests some existing level of readiness which is considered somehow inadequate by some standard. Alternatively, it may mean improvement of the level of readiness currently extant in Navy units to some higher level. A third interpretation is that there is some range of measure for unit readiness which is bound by some defined minimum level above which all units' levels of readiness should be raised.

The questions raised by the term "improved unit readiness" can also be asked in a definitional sense. For example, "Readiness for what?" The obvious answer is, "Readiness for mission accomplishment." However, what of those units with multiple mission requirements? Which mission has priority? How much of the unit's effort should be spent fulfilling its primary mission, and how much effort should be spent fulfilling secondary or tertiary missions?

Similarly, the word "improvement" raises a corresponding set of questions. Improvement in what specific areas? How much improvement is required? How is improvement to be measured?

Such are some of the questions raised by the term "improved unit readiness." The other half of this particular objective. "improved operational capability," also raises similar questions. It should be remembered that this is but one of eleven objectives identified for the HRMSS.

In the author's experience as an HRM specialist working with Navy units, most of the commanding officers encountered evidenced rather thorough knowledge of the HRMSS concepts and objectives as outlined in OPNAVINST 5300.6B. However, in most cases these individuals also wanted to know what they had to do specifically to implement their programs of planned improvement. Just as often, the HRM specialist was placed in a position where there was no ready answer to such a question. He was thus forced to fall-back position where he would have to ask the commanding officer some variation of the question, "What do you want to do?" If the commanding officer could not answer this question, the HRM specialist could, and often did, offer several alternatives generally confined to the framework of the HRAV process. These alternatives were generally concerned with the gathering of information more specific than the survey could produce or conducting various workshops and training sessions. If the commanding officer agreed to what was offered, the activities were duly conducted.

Unfortunately, having no specifically defined and measureable criteria to guide him, the HRM specialist was at a loss to ascertain what specific results were to be achieved, from a practical point of view, by the unit's participation in the activities. Therefore, though the activities could be conducted mechanically well by virtue of the HRM specialist's knowledge and experience, the results

were more often than not in doubt. The HRM specialist could report to the commanding officer that certain activities had taken place. He could also provide his observations of any results achieved, such observations being based solely on the biases of the individual HRM specialist doing the reporting. He could also speculate that given the particular training imparted to the crew and continued command support some improvement would probably be realized at some time in the future. He was not, however, able to specify just what improvement would be manifested or how much time would be required. Finally, notwithstanding that OPNAVINST 5300.6B indicates that all units shall receive follow-on assistance as desired by the commanding officer and consistent with the availability of HRMC/D assets, in the author's experience there were very few such requests.

An example will serve to illustrate. In one unit to which the author was assigned, the HRAV process was performed, and some progress was evident among crew personnel, having been made aware of the HRMSS concepts, attempting to improve certain aspects of the command. Immediately following the scheduled HRAV period, the commanding officer was relieved as a result of regular rotation. Prior to his being relieved he indicated that he would pass on a description of what had occurred to the new commanding officer so that the hard-won improvement momentum could be maintained.

Following the change of command, the new commanding officer was contacted and offered assistance. He declined and indicated that his knowledge was sufficient to continue the process of improvement begun by his predecessor. No further follow-on assistance was ever requested by the new commanding officer.

In due course, this same unit was scheduled for a second HRAV while this individual was still in command, and, again, the author was assigned to provide the services. The resurvey of the crew indicated that general conditions had reverted back to what was indicated in the original survey completed by unit personnel nearly one and one half years earlier. Such progress as was made during the initial HRAV was not longer evident. It should be borne in mind that throughout this entire period the unit apparently performed well enough to accomplish its mission.

Having been the first such case of its kind at the HRMC where the author was stationed, the situation was analyzed carefully. The analysis resulted in several possible reasons for the anomaly.

1. The original HRAV may not have been done as well as it could have been.

2. Through normal personnel turnover, the personnel who participated in the initial HRAV were no longer in residence, and their training was lost.

3. The new commanding officer did not consider himself bound by what his predecessor had begun, and, therefore, he did not support the maintenance of the new knowledge and skills in those members of the crew who had acquired them.

4. The scheduling of the initial HRAV nearly coincident with normal rotation of the commanding officer detracted from the continuity necessary for progress maintenance.

5. The lack of specific definition of what the HRMSS objectives are led to a loss of momentum because the command, having begun to make progress, reached a point from which it did not know how to proceed further.

It was supposed that the anomaly found its source in all of these reasons to some degree, but, having gone this far in determining possible causes, the necessary work for verification was not done, and the opportunity thus presented to the HRMC for assessment of HRAV impact was lost. If it is assumed that the HRAV process can be applied in any command and that the HRM specialist provides the best performance of which he is capable, the inescapable indications are that the HRAV was either not done well by the HRM specialist or that it has no impact in the unit to which it is applied through non-cooperation of the command or poor design of the HRAV.

The foregoing example also indicates two additional insights:

1. Without definitive and measureable criteria with which to minitor unit performance (with respect to HRAV mechanics and impact) over time, any assessment of HRAV impact is speculative at best.

2. Unit performance, as indicated by its capability to meet its employment schedule or by other general criteria continues with or without the introduction of the HRAV. Assuming these indications to have some veracity, the question of HRAV impact assumes an even greater degree of importance. Now the question becomes, "Is the time, money, and effort put into the HRAV worth the expenditure of these resources?" Having only speculation as a source of information, the answer to such a question is of limited value at best.

B. ASSESSMENT OF HOW WELL THE HRAV IS ACCOMPLISHED

Assessment of the impact of the HRAV in the units to which it is applied seems to hinge on the two questions:

1. How well are the various HRAV and related activities done within the unit?

2. What is the impact of the HRAV in the units to which it is applied?

This section deals with the first of these questions, and the second question is addressed in the next section of this chapter.

Examination of how well the HRAV and related activities are performed cannot be done without also considering the HRM specialist who performs the activities and the setting in which they are performed. The HRAV activities are performed by the HRM specialists in whatever organizational climate exists in the participating command. Assuming that whatever activities are done with respect to the HRAV process have

been designed to fit a particular situation, the key question becomes, "Was the situation affected?"

Lacking standard specifically defined objectives for the HRMSS and lacking standard, specific, and measureable evaluation criteria which can be applied by an objective third party, the only sources of information available to determine how well the HRAV and related activities are done are the HRMC/D which provides the services and the commanding officer of the unit that receives the services. If these two sources are seriously used to assess how well the HRAV and related activities are done much useful information can be obtained at relatively insignificant cost.

As mentioned, most of the HRMC/D personnel input is acquired via one or more of the HRM specialist formal training courses. Upon arrival at the HRMC/D to which assigned, the HRM specialist receives further training by participating in in-house instruction and on-the-job activities with more experienced personnel.

Within the HRMC/D, HRM specialists are organized into Human Resource Management Support Teams (HRMST). Each team is comprised of several officer and enlisted personnel, each of whom has received formal training in one or more of the several components of the HRMSS. Each team is headed by a middle grade officer (at the LCDR or CDR level) who has had prior command experience. Each fiscal quarter, the several units scheduled for an HRAV are divided among the teams (both at the HRMC and its subordinate detachments), and the

teams are responsible for providing the necessary services to their respective assigned units. The HRMST team leader then allocates his resources to meet his quarterly schedule. A leading HRM specialist is assigned for each unit, and it is his responsibility to perform the necessary planning, coordination, and execution of the HRAV activities for the unit(s) to which he is assigned. All the other team members are available to the leading HRM specialist as resources from which he can draw.

Presumably, the leading HRM specialist, with his or her training and experience, knows generally what has to be done in the unit scheduled for the HRAV. He knows the sequence that must be followed and how much time and personnel each activity requires generally. If at all possible, the leading HRM specialists are assigned to units in which they have had some prior operational experience. For example, a pilot might be assigned to provide HRAV services to an aircraft squadron, whereas, a surface warfare officer might be assigned to provide services for surface units only. Having had prior operational experience in the unit types to which he is assigned can be a definite aid to the HRM specialist.

1. It can aid his establishment of credibility with the commanding officer of the unit to which he is assigned, and the existence of such credibility is probably a strong influencing factor in the perceived performance of the HRMST from the unit commanding officer's point of view.

2. It is helpful in his capability to empathize with the unit personnel with whom he comes into contact in that he can understand their problems when they are presented to him because he has experienced those same problems.

3. It can save him time in assessing the organizational climate of the unit.

Unfortunately, such prior experience might also work to the detriment of the HRM apecialist.

1. It may cause him to have preconceived ideas of what he will perceive in a unit which might be erroneous. If, as happens occasionally, the HRM specialist is senior in rank to the unit commanding officer, such erroneous ideas can be a definite threat to the commanding officer. If the possibility of a basic personality conflict between the two individuals is considered, the problem is compounded.

2. It may lead him to erroneous conclusions and errors of judgement. If these, in turn, lead to misdirected action, the HRM specialist will probably lose credibility at best. At worst, the unit in which the action takes place will probably suffer damage from which it might be difficult to recover in terms of the possibly detrimental effects on organizational climate.

The HRM specialist must know his job (the work content) and the setting (the work context) in which he performs it. As suggested by the sequence of events in the HRAV process, it seems reasonable that certain questions can be asked of

the HRM specialist which cover each step of the process to examine how well he thinks the activities were performed. Using such a procedure with a number of HRM specialists over a period of time, the HRMC/D could begin to obtain information with which it could justify operational and/or procedural changes to improve the services provided. This presupposes that each HRM specialist provides essentially the same services in the same sequence and that the HRMC/D provides its specialists with definitive policy and direction concerning what they are expected to accomplish in the units to which they are assigned.

As a check against the perceptions of the HRM specialists concerning how well they think they are performing, the same set of questions can be asked of the commanding officer of the unit that received the services. The major thrust of the HRMSS is to provide assistance to command. As noted in chapter II, the HRM Survey reflects how the individual crew members perceive various aspects of the command to which they are assigned. It was stated that these perceptions (right, wrong, or indifferent) constituted reality for those individuals at the time they completed the survey, assuming honesty in their responses.

This same idea is also applicable to a commanding officer. He too is an individual with biases, and he is the primary customer that the HRMC/D attempts to serve. One measure of the service he receives is his own perception of the service,

right, wrong, or indifferent. If he is pleased with what the HRM specialists do, his continuing support for his improvement program will probably be a major factor in its successful implementation and operation. If he is displeased or indifferent to what the HRM specialists do, the success or sustenance of a planned unit improvement program will probably be limited. The two foregoing statements suggest that the commanding officer is the major driving force behind what his unit accomplishes. Indeed, this is one of the major assumptions of the HRMSS. Without the support of the commanding officer, there seems to be little sense in trying to effect improvement in a unit by "outsiders." With his support and with his capacity to rearrange his priorities and allocate his resources accordingly, any improvement program has a correspondingly greater chance of success. Therefore, though the commanding officer might not be the focus of HRAV activity, it is he who must perceive the possible benefit to his unit of full participation in the HRAV. It is the HRM specialist who must provide the commanding officer with this perception. If the commanding officer does not perceive benefit, the HRAV process will probably have very little impact no matter how well the activities are mechanically performed by the HRM specialist.

Assuming, then, that the HRMC/D knows what its specialists are to accomplish, certain questions can be asked of those specialists in an effort to determine how well the various steps of the HRAV process are being performed. As

a check against the perceptions of the HRM specialists, the same questions can be asked of the commanding officer for whom the service are provided. The responses from the two sets of questions can then be compared. It is presumed, if the HRAV activities are done well or even just adequately, that the responses to the two sets of questions will be essentially the same. If the responses are significantly different, then the HRMC/D has indications of those areas where the services provided require improvement or where the specialists require further training or guidance.

If the proper questions are asked and if both parties are honest in their answers, the case made in the foregoing paragraphs can be stated as a testable hypothesis.

HYPOTHESIS 1. The comparison of evaluation questionnaires obtained from the HRM specialists and the commanding officers will show no significant differences in the responses over the entire set of questions aksed for assessment of how well the various HRAV and related activities were accomplished.

C. ASSESSMENT OF HRAV IMPACT ON UNIT OPERATIONAL PERFORMANCE

Once it has been determined that the HRAV and related activities are being performed as well as possible by HRM specialists, the other major question concerning the impact of the HRAV on the operational performance of the unit can be addressed. It was stated elsewhere in this paper that impact assessment is difficult if the objectives for which positive impact is desired are not specifically defined.

In U.S. military history it has been traditional for senior commanders to speak and provide direction to subordinates in general terms. The details of accomplishment are left to the discretion of the subordinates who must comply with the senior commander's direction. In a notable example in 1864, Grant told Sherman,

> "You I propose to move against Johnston's army, to break it up and get into the interior of the enemy's country as far as you can, inflicting all the damage you can against their war resources." [Ref. 13]

History has recorded the success of Grant's subordinate in this venture. More recently, Admiral Nimitz's orders to Fletcher and Spruance for joining the Battle of Midway were to,

> "...inflict maximum damage on the enemy by employing strong attrition tactics..." [Ref. 14]

Again, history records the success of the subordinates.

In current military management by senior commanders, this same tradition is apparent in the general guidance provided in instructions promulgated by higher authority which apply to an entire military department such as the Navy. The generality of the guidance in OPNAVINST 5300.6B has been alluded to elsewhere in this paper. The details of the objective "To improve unit readiness and operational capability" are left to subordinate levels to effect. By extension, what constitutes improved unit readiness and operational capability is also left to subordinates for interpretation. Lacking specific direction, there are as

many interpretations of improved unit readiness and operational capability as there are subordinates who concern themselves with the problem. This in turn leads to improvement actions which are as many and varied as the interpretations of what the problem involves.

While attempting to effect general Navy operational improvement in this fashion may be an effective way to proceed, it does create difficulties in management for top level personnel. Seniors can discern improvement oriented activity among subordinates, but they do not know what the end result will be unless there exists defined criteria with which to measure improvement and a functioning information feedback system which provides them the data. The Navy command inspection program for various aspects of unit readiness is a convenient example of a system wherein criteria are specifically defined and information is fed back to top management levels. Unfortunately for the HRMSS, no formalized mechanism for assessing effectiveness or impact exists, nor is there a formalized procedure for providing general feedback information to senior managers.

If HRMSS objectives are being met, it seems that improvements should be apparent in recognizable and accepted performance indicators in a unit as a result of the unit's participation in an HRAV. For example, it is reasonable to expect increased retention of eligible personnel. It is reasonable to expect a reduction of the number of disciplinary infractions by unit personnel. It is reasonable to expect to

see a unit achieve higher inspection scores. It is reasonable to expect to see improved morale. Any or all of these benefits and more should accrue if the objectives of the HRMSS are being met.

As with the case for determining how well the HRAV activities are done, the considerations presented in this section for determining the impact of the HRAV in participating commands can be reduced to a testable hypothesis.

HYPOTHESIS 2. A significantly greater change in performance in recognizable and generally accepted performance indicators will occur in the positive direction for units that have participated in an HRAV when compared to a similar group of units that have not participated in an HRAV.

The design and application of procedures to test these two hypotheses was the major thrust of the effort for this study. The following two chapters provide the design description and the results of its application respectively.

D. SUMMARY

Though the total annual cost of operating the HRMC/D's is relatively insignificant, it is money which could perhaps be used in other productive pursuits. However, if the objectives of the HRMSS are being met, the price is small and worth the expense.

Detailed examination of the HRMSS objectives as stated in OPNAVINST 5300.6B raises a host of definitional questions which defy general answers because the statements of the

objectives are not specific. This leads to individual low level interpretation of what is required, and it leads to individual improvement actions which are difficult to aggregate such that general Navy improvement can be ascertained.

Assessment of the HRAV seems to be dependent on the answers to the two questions:

1. How well are the HRAV and related activities performed within a unit?

2. What is the impact of the HRAV on a unit's operational performance?

IV. PRELIMINARY EVALUATION SYSTEM DESIGN

A. OVERVIEW

The need for assessing the impact of the HRAV in operational units has been recognized for some time. Many researchers have addressed the problem both officially and unofficially. As a result of some of this work, significant changes have occurred in the system. For example, OPNAVINST 5300.6B is itself the result of evolutionary changes in the HRMSS based on experience gained since the system was first conceived and implemented. Another significant change was the reduction of the number of core questions in the HRM Survey from 103 in the early version of the "Sea" survey to the present 88.

Such changes as have been made to date have presumably resulted in a better and more effective system. Supposedly, the current system is more closely aligned to the requirements of the commands it is designed to serve.

Assuming that the current HRMSS is the best system that can be devised for the present, the need to be able to assess HRAV impact is all the more important if the system is to remain responsive to continually changing fleet requirements. Similarly, impact assessment can be used as one basis for efficient allocation of resources.

After citing several recent attempts to evaluate the impact of the HRAV, the final section of this chapter offers

a design for evaluation of the impact of the HRAV which builds and expands upon work done in previous studies. This design is based on the two hypotheses stated in chapter III of this paper.

B. EXAMPLES OF PREVIOUS ATTEMPTS TO ASSESS HRAV IMPACT

The need to have a method for assessing the impact of the HRAV in operational units was recognized very early after the system was first implemented in 1971. In that year, a study done at the U.S. Naval Postgraduate School by C. C. Hooper [Ref. 15] proposed an evaluation methodology. Hooper's evaluation system was based on comparison of the results of two consecutive surveys taken in the same unit, one prior to an HRAV and the other some time subsequent to the unit's participation in the HRAV.

Hooper's survey contained items which required two answers. The answers to each question were of the respective forms "As it is" and "As we would like to see it." The questions themselves depicted several situations concerning various aspects of organizational climate. Presumably the survey indicated a gap of significant distance between the aggregated answers for "As it is" and those for "As we would like to see it."

The gaps appearing in the initial survey formed the basis of HRAV improvement activities. Impact could be assessed by conducting a second survey in the same unit some time after the HRAV. By comparison of the gaps on the second

survey with those on the initial survey, HRAV alleged impact could be determined along the selected dimensions of the survey instrument.

Though Hooper's proposal was a seemingly reasonable approach, the survey form on which it was based did not survive in subsequent system evolution. Though Hooper's approach was not officially implemented, the underlying concept of comparison over two consecutive periods did survive. It is implicit in the availability of follow-on assistance that provision for a second survey be available to a unit following completion of a scheduled HRAV.

In 1975, a study officially sanctioned by the program sponsor was jointly made by Dr. Kent Crawford and Edmund Thomas of the U.S. Navy Personnel Research and Development Center, San Diego, CA. [Ref. 16] The results of their study were published in a report entitled "Human Resource Mangement and Non-judicial Punishment Rates on Navy Ships." As the title suggests, the study attempted to determine whether or not there was any correlation between the organizational climate in Navy units and the units' performance in a recognizable and generally accepted performance indicator area, e.g., Battle Problem scores in Refresher Training.

The researchers compared unit response aggregates for several of the HRM Survey indexes with the units' rates of non-judicial punishment (NJP). As a result of their study Crawford and Thomas found,

> "...it appears that the dimensions measured by the HRM Survey make significant contributions to the variance of NJP rates on Navy ships. Lower NJP rates were consistently found among those commands in which the human organizational system was perceived to be most effective..."

It is interesting that the researchers used words like "appears" and "significant contributions." The word "appears" does not connote that such findings are definite. Similarly, the words "significant contributions" do not convey exactly what the contributions are. Also of interest is that this study, like Hooper's before it, was based entirely on the responses to survey questions; that is, to people's perceptions and not on direct observations of their behavior.

In June, 1976 the Commander in Chief, U.S. Atlantic Fleet (CINCLANTFLT) reported to the Chief of Naval Operations (CNO) the results of his own study made concerning assessment of the impact of Human Resource Management in LANTFLT units [Ref. 3]. This study used the previously cited Crawford/Thomas report as a basis. NJP statistics were obtained for LANTFLT units which had experienced HRAV. The periods observed were three months prior to the unit's participation in an HRAV and six months following completion of the HRAV.

It was first observed that,

> "... the impact of HRM assistance may be measureable by performance criteria earlier in small units. Since the method of providing HRM assistance to both large and small units has been virtually identical, it is concluded that the method of providing HRM assistance to large units needs to be refined in order to achieve earlier positive impact."

This is the first time in the author's experience that official recognition has been given to the possibility that the HRAV process as presently constituted might not have universal application throughout all Navy commands.

The report goes on further to say,

> "It is considered very significant that the units that were categorized as having the most potential for improvement did in fact experience a very significant improvement, in terms of NJP's. It is apparent from this data that the HRM effort in LANTFLT is producing positive results."

Potential for improvement was determined by separating the sample units into three groups, those having low, medium, and high NJP rates respectively. The quoted statement suggests that the HRAV process has the most effective positive impact in those which by some standard are most in need of the introduction of HRMSS concepts and resultant improved leadership and management practices. This seems intuitively reasonable.

The conclusions of this study, like those cited for the Crawford/Thomas study above, do not mention specifically how the HRAV might be conducted differently in large units as compared to how it is conducted in small units to produce positive results in a more timely fashion. Similarly, the phrase "...apparent...that the HRM effort in LANTFLT units is producing positive results" does not suggest specifically what is being done to produce positive results.

Common among all the studies cited is the idea of impact on unit performance as a result of participation in an HRAV. The dates of the studies suggest both that the problem has been long recognized and that the need for evaluation methodology still exists. It is contended that though the cited studies were proper exercises in attempting to evaluate the impact of the HRAV in operational units, they did not go far enough. All of them, however, touched on the two hypotheses of this study. All three suggest measurement of HRAV impact by recognizable unit performance criteria. The CINCLANTFLT study also suggested a question concerning how well the various HRAV's are conducted in different units.

C. AN APPROACH TO ASSESSMENT OF HRAV IMPACT

The hypotheses stated in chapter III are repeated here for convenience.

HYPOTHESIS NUMBER ONE. The comparison of evaluation questionnaires obtained from the HRM specialists and the commanding officers will show no significant differences in the responses over the entire set of questions asked to assess how well the various HRAV and related activities were accomplished. Acceptance of this hypothesis would increase confidence in the instrument (see Appendix B for acceptance rationale) as an indicator of HRAV performance.

HYPOTHESIS NUMBER TWO. No statistically significant change will occur in units having participated in an HRAV as compared to a control group of similar units that have not

participated in an HRAV (stated in the opposite sense from the statement in chapter III). Rejection of this hypothesis and a "t" test showing positive difference would indicate some influence of the HRAV. (See Appendix B for rejection rationale and "t" test.)

Taking each hypothesis in order the following approach is offered as a way of assessing the impact of the HRAV on the unit performance of operational Navy commands.

1. Test Approach for Hypothesis Number One

In attempting to assess how well the various HRAV and related activities are done by HRM specialists working in an operational unit, it was noted elsewhere in this paper that no official and standardized performance criteria for HRM specialists have been developed. Lacking such criteria it was assumed that two primary sources of information existed for assessing how well the HRAV and related activities are done. These sources are the Human Resource Management Support Team (HRMST) which provides the services and the commanding officer of the unit that receives the services. Presumably the HRMST knows what it is trying to accomplish generally at each step of the process. As a check of their perceptions, the commanding officer of the unit receiving the services can be asked what services he thinks he actually received. If the HRAV and related activities are done well or adequately, the answers to questions asked of the HRMST and a corresponding commanding officer concerning how well

These assignments were then used to plot the total score of each questionnaire in the set. The HRMST score was plotted along the horizontal axis. The corresponding total score for the commanding officer was plotted along the vertical axis. Thus for any point so plotted one can determine immediately the values of the total scores for both the HRMST and the commanding officer of the unit that participated in the HRAV.

The scale along each axis was divided using the ranges and their corresponding assessment categories shown in Table 1 above. The division lines for the three assessment categories were extended perpendicular to their respective axes to form a Cartesian grid in which were included all the plotted points. The resultant graph is shown in Figure 6 below.

As expected, most of the plotted points appeared at a value of 27 or greater on both axes. There was one notable exception. In Figure 6, one can easily see relative differences (in quadrants I and IV) or equalities (in quadrants II and III) between how well the HRMST thought the HRAV was done and how well the corresponding commanding officer thought the HRAV was done.

Linear regression techniques were applied to determine the line through the plotted points which best described the relationship of all the points. In chapter IV it was postulated that the line which best described the plotted points would assume the relationship shown in Figure 4;

CORRESPONDING PERCEPTIONS OF HRAV EFFECTIVENESS

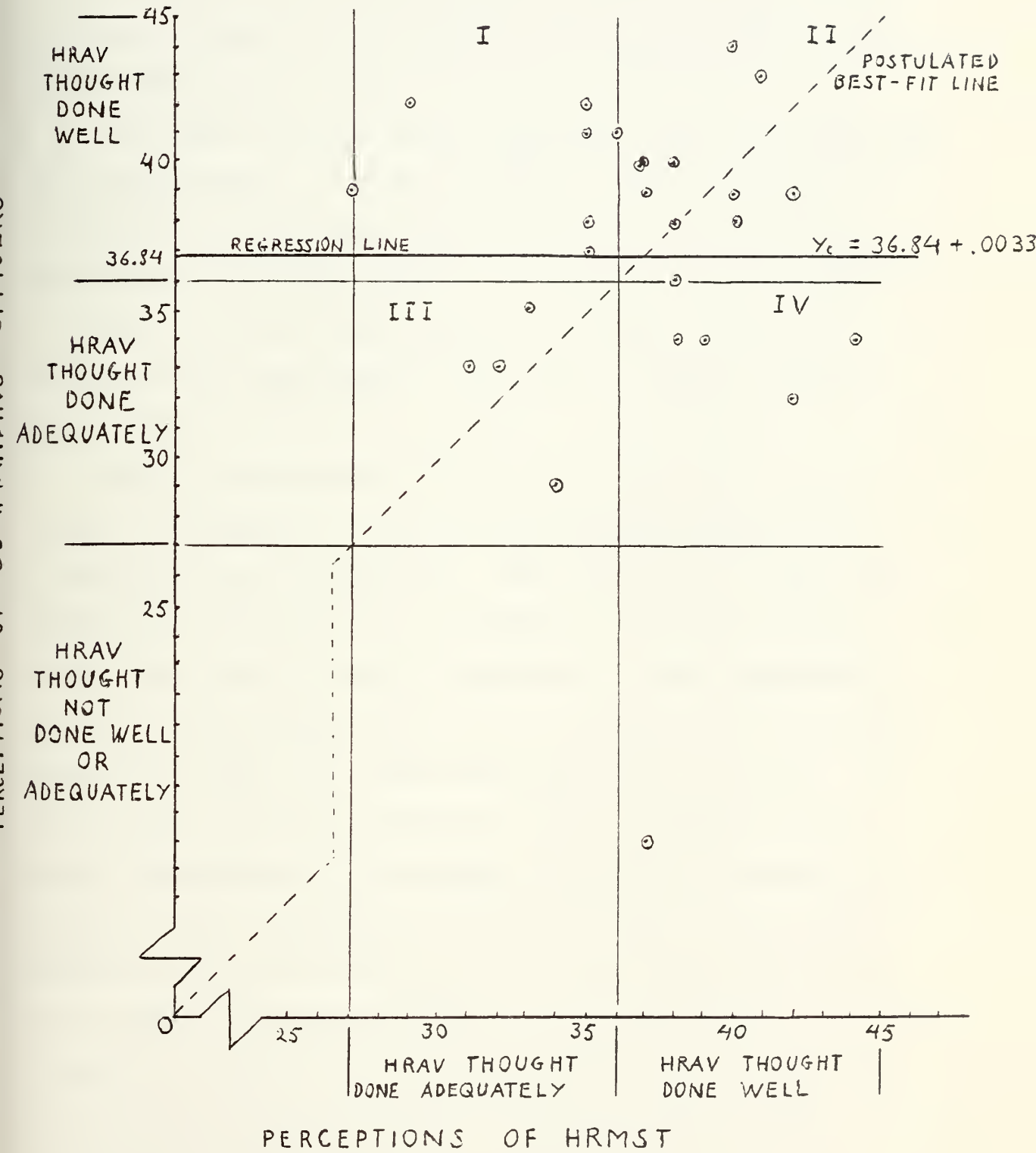


figure 6

that is, there would be a one to one relationship for the values shown on the two axes on the average. The line was supposed to have a Y = 0 intercept and a slope whose value approached unity.

The result of the linear regression was a line described by the equation $Y_c = 36.84 + .0033X$. Taken at face value, this equation means that when X = 0 (that is, if nothing is perceived to have been done by an HRMST in a unit), then Y = 36.84 (that is, the commanding officer of the unit perceives that the HRAV was done well). This is clearly impossible.

Using the assessment categories shown along the two axes of the graph in Figure 6, the interpretation of the line becomes more reasonable. The indication is that most HRAV's are perceived by the commanding officers in whose units they occur as having been done at least mechanically well by virtue of the fact that the vertical axis intercept value is so high. The implication of this is obvious. On the average, no matter how well or how incompetently an HRAV is performed, the commanding officer will be able to perceive that the necessary activities were in fact done. Another less obvious implication is that the effectiveness of the HRAV might be independent of the specialists' competence. That is, if the HRAV activities are performed only mechanically well, they will be perceived by the recipient as having been performed effectively.

This last statement also seems to be supported by the almost insignificant slope of the regression line. Here the implication is that no matter how well the HRAV process is performed, the perception of the commanding officers receiving the services will be only that the activities were done mechanically well. It should not be concluded that such a result is necessarily bad. Rather, the result can be interpreted as what can be expected on the average. Since, as indicated by the high value of the vertical axis intercept and the "flat" slope of the line, most commanding officers perceive that HRAV's are performed well, it can be said that most HRAV's are probably done well.

Though the graph of Figure 6 and the foregoing discussion of its interpretation seem to refute the statement of Hypothesis Number one, these results are not particularly surprising. In the author's experience most of the HRMST personnel who provide HRAV services have been dedicated and competent. It is far easier to accept (at this point) the error apparent in the statement of the hypothesis than it is to offer an indictment against the HRMST personnel and the HRAV process they use to provide services to operational units.

It can be concluded generally that the various HRAV and related activities have merit in the eyes of the average commanding officer and that the HRMST's perform those activities at least mechanically well. Additionally, it can be generally concluded that a great deal of extra

personal effort on the part of the HRMST will not be recognized by the average commanding officer. This in no way implies that the effort should not nonetheless be made by the HRMST. It is perhaps because of this effort that the average HRAV is perceived by the average commanding officer to have been done even only mechanically well.

Figure 6 also indicates two more items of possible interest. The regression line, coupled with the superimposed Cartesian grid, divides the plotted points into two major and several minor segments. For the points above the regression line (and assuming the questions asked of the commanding officers are the proper ones for assessing HRAV effectiveness) it can be said that the HRAV was in fact done well whether or not the HRMST thinks it was done well. Additionally, since the regression line appears nearly at the boundary between "adequate" and "well done," it can be said that points appearing below the regression line indicate that the HRAV's were performed adequately or not particularly well as the case may be (and if the definitions of the grid coordinates are accepted).

Figure 6 indicates that 66% of the HRAV's are considered to have been done well and 29.6% are considered to have been done adequately. Since one of the purposes of the HRMSS is to provide assistance to command, it seems as though this purpose is being fulfilled in nearly all cases. The graph shows one notable exception.

In this case which can be examined in the raw data, the commanding officer made the following comments.

> "...they impressed me as being totally divorced from the mission and needs of a sea-going command. The team seemed to be possessed with the idea that participative type management was the only solution for all problems regardless of the employment of the command. They also seemed to be enthralled with the esoterica of the computer runs, yet at the same time unable to translate what it really meant. While the general remarks about the data were indeed gratifying, they told me little I was unaware of already, and frankly, had there been any big surprises, I would have felt remiss as a C.O. The cost and effort expended seem totally inappropriate to the benefit gained.
>
> Throughout the HRAV period I felt I was associating with personnel who somehow weren't part of the Navy. At one point I even had to ask the team leader to correct a totally inappropriate and non-regulation haircut on one of the team members.
>
> On the positive side, the AAP development sessions were generally constructive, and they provided the catalyst needed to take an in-depth look at what was required for a good, realistic, and workable AAP.
>
> The strongest part of the program appears to have been the training of the CTT. This training and the subsequent seminars on Racism and Military Rights and Responsibilities has been very well received at all levels, and is, in my opinion, a fine tool to help us achieve Phase II goals. The service provided here is most sincerely appreciated."

It must be remembered at the outset that this is only one of a total number of 27 HRAV's plotted in Figure 6 for the period of observation, and in no way does it reflect the general trend. It is taken out of context because it is illustrative of the sorts of things that can happen during an HRAV effort and of which the HRMC/D might be concerned in future efforts.

The negative comments did not so much concern the HRAV activities and how they were done as they did the impression left on the commanding officer by the HRM specialists who did the work. In fact the positive comments concerning the activities conducted for the Phase II Equal Opportunity/Race Relations Program indicated that the mechanical activities were done rather well.

Presumably because of the negative impression left on the commanding officer by the specialists (and it need not have been all the specialists on the team as implied in the comments) that individual sees little benefit that was gained or (in the author's opinion) little benefit to be gained from further pursuit of the effort following the HRAV.

Notice from Figure 6 that in this case the HRMST thought they had done well in their effort. Though this may perhaps have been true, they still failed apparently to win the support of the commanding officer, not because the HRAV process or activities were at fault but because the HRMST apparently misread the situation. Perhaps they did not appreciate the possibility that the commanding officer might be as "smart" as they think they are or that he might know his command as well as they though they did.

The attempted "sale" of participative management as a panacea (if this is what actually occurred) indicates a misreading of the commanding officer's perceived needs or desires on the part of the HRMST. Alternatively, it indicates

that the HRMST tried to move the unit to its point of view before the commanding officer was ready to go. The haircut problem is so basic and obvious that nothing more need be said concerning it.

This example has been dealt with at length not because it is typical but because it is extreme and because it clearly indicates the importance of the role of the HRM specialists in providing HRAV and related services to an operational unit. In contrast, this leads to consideration of the more typical cases.

It was stated earlier that the plotted points of Figure 6 and the corresponding regression line seemed to refute the statement of Hypothesis Number One. Since this was a somewhat surprising initial result, two statistical tests were done to explain the difference between the anticipated results and those that occurred.

A "Chi Square" test (see Appendix B) was performed to assess the acceptability of the hypothesis, and the degree of correlation between HRMST and commanding officer total scores was calculated. The "Chi Square" test indicated that the hypothesis as stated could be accepted. The correlation calculations resulted in a correlation factor of $r = 0.0031$ (almost no correlation at all) between the two sets of questionnaire answers.

The standard error of the estimate was calculated for the regression line to be $S_{y:x} = 1.28$. This small value

for the standard error of the estimate indicated that the regression line shown in Figure 6 adequately described the plotted points.

Since the "Chi Square" test indicated that there should be no material difference between the scores obtained by the HRMST and the corresponding commanding officer, and since the regression line was verified by the small standard error of the estimate, the fact of nearly zero correlation between the two scores presents a dichotomy which is difficult to account for, but which can perhaps be explained by one or a combination of the following possible reasons:

1. Neither the techniques used here or in any other statistical techniques that measure or express the relationships among variables can prove beyond all doubt that one variable is the cause and one or more variables the effect(s). Therefore a measure such as the coefficient of correlation does not prove the existence of a cause and effect relationship between two variables X and Y, nor does it negate the existence of such a relationship. The low correlation factor in this case speaks about very little association between what the HRMST says about an HRAV on the one hand and what the corresponding commanding officer says on the other.

2. Extrapolation of the regression line beyond the range of observed data in either direction does nothing to indicate that the relationship is valid in those areas where data are non-existent. For example, extrapolation of the

line calculated in this case to the vertical axis indicates that commanding officers perceive that the items tested by the questionnaire were done well (e.g., Y = 36.84) when, in fact, nothing was perceived to have been done by the HRMST (e.g., X = 0). Such a result is clearly impossible. Without specific information about the areas outside the range of observed data, it is simply unknown what the appropriate estimating device is.

3. In a situation such as this case where the indication of correlation between the two sets of scores is extremely small (or correspondingly in cases where the coefficient of correlation "r" is extremely large, e.g., r = 1), one would be reluctant to conclude that no correlation exists. One would rather begin to suppose the existence of other variables not accounted for in the calculations. Three such possible variables come to mind in this case.

a. The perceptions of the commanding officers and HRMST team leaders, and/or their respective interpretations of the meanings of the questions, were completely different when answering essentially the same questions.

b. The questions themselves were improperly designed and did not result in obtaining the desired information.

c. The roles and needs of the commanding officer and the HRMST are so completely different that their respective perceptions are equally disparate.

It was suspected that these latter three factors accounted most for the dichotomy between the hypothesis as stated and the results obtained.

The results do not indicate that the hypothesis is in error. They do indicate, however, the need for more rigorous work to test the hypothesis. Such work requires properly designed evaluation questionnaires which provide the desired information while simultaneously reducing the possibility of perceptual and interpretational differences among those parties who answer the questions.

Additionally, having designed an appropriate and adequate evaluation instrument (perhaps using unobtrusive measures), one should ensure that the sample size is large enough to be representative of the population in which one is interested and to make the statistical inferences drawn from the data more meaningful. It was recognized in this case that a sample size of 27 may not have been adequate to test the hypothesis and prove its veracity or lack thereof.

With these thoughts in mind, the 26 points plotted in Figure 6 which are clustered in the upper right region indicate that 66% of the HRAV's are considered to have been done well and that 29.6% are considered to have been done adequately. The vertical divisions of the grid show the

correspondence between how well the HRMST think they performed as opposed to how well corresponding commanding officers think the HRAV was performed.

Quadrant II is of limited interest since it shows the correspondence of opinion hypothesized. Indeed the greatest percentage of the plotted points fall within this quadrant thus lending credence to the hypothesis.

Quadrant III also shows general correspondence of opinion, but one wonders what was done or not done to result in these perceptions on the parts of both players. It would seem that further investigation would reveal what happened and would point the way to what could be done to raise both perceptions to the level of quadrant II.

Quadrant I seems to support the statement made earlier that the perception of how well the HRAV is done on the part of the commanding officer should be equal to or greater than the perception of the HRMST on a quantitative basis.

To a lesser degree, the points on quadrant IV are illustrative of the example described in detail above. Though the HRMST thought they performed well, the commanding officer with whom they worked did not agree. This, again, keys the question, "Why?" As noted for quadrant III, further investigation would probably reveal what could be done to raise the quantitative level of the commanding officer's perceptions in these cases.

Even assuming these interpretations of the results to be in error, the ability to plot the points and assign them to an assessment category provides the HRMC/D a more objective tool for evaluation of HRAV effectiveness than has heretofore been available. This tool can also provide the following desirable by-products:

a. It can be standardized for use throughout the system, thus providing top management levels with a Navy-wide view of HRAV effectiveness.

b. It can be used locally to provide the HRMC/D a way to evaluate its procedures and its HRM specialists.

c. It can be used, after sufficient data have been accumulated, as the basis for future changes in HRMSS policies and in the procedures by which those policies are implemented.

d. It can be used as the basis for development of internal HRMC/D training activities for HRM specialists.

e. After accumulation of sufficient data, it can be used to predict the impact of the HRAV on unit performance with some degree of certainty and confidence.

C. ASSESSMENT OF HRAV IMPACT ON UNIT OPERATIONAL PERFORMANCE

With regard to the impact of the HRAV on unit retention and ASI scores, two-way analysis of variance techniques were applied to the data. After correcting the retention rates for size of the unit, it was found that the HRAV versus non-HRAV units were not significantly different in their

reenlistment efforts; nor was significant difference found when ASI scores were compared.[1] At best, on the basis of accumulated raw scores for both retention rates and ASI's, one can assert that there is an apparent trend in the desired direction as one compares units that experienced the HRAV with those that did not.

When looking at retention rates of HRAV units versus non-HRAV units over a fifteen month period one sees a gain of + 0.7099 for the HRAV units and a decline of - 0.1843 for the non-HRAV units. Both figures are based on average normalized retention scores for both groups.

---

[1] Retention

Mean Sqaure (time periods) = 0.2433
Mean Square (units) = 1.378772
Mean Square (group) = 0.8376
Mean Square (interaction) = 1.9842
Mean Square (error) = 1.1116
F = 0.7858
p > 0.20

ASI Scores

Mean Square (time periods) = 0.02475
Mean Square (units) = 45.4222
Mean Square (group) = 20.3974
Mean Square (interaction) = 28.3105
Mean Square (error) = 40.6925
F = 0.5012
p > 0.20

Collation of the ASI scores over at least two inspections shows a movement of + 0.1339 for the HRAV units and a movement of +0.0079 for the non-HRAV units. These figures are also based on average normalized ASI scores for both groups.

The frustration of this analysis is heightened as one realizes that two simple but missing links preclude further investigation. If the researcher had access to the identity and the operational scores of the HRAV and non-HRAV units across all measures one could perform an analysis of covariance to study the combined treatment effect upon these variables.

If one had a reliable evaluation of the HRAV for each unit, one could also study the impact of effective HRAV's upon operational outputs. In short, a well-designed evaluation model should include:

A	B	C	D
Identity of Experiment and Control Units	Operational Output of Matched Experiment and Control Units	Reliable Evaluation of the HRAV Effectiveness	Valid Measures of Operational Outputs

Denying the researcher access to any one of the factors A through D makes firm conclusions impossible.

As noted earlier, both the NPRDC and CINCLANTFLT studies found positive correlation between either aspects of organizational climate and non-judicial punishment rates or HRAV impact and non-judicial punishment rates respectively. The observation of unit retention and ASI scores done for

this study goes one step further than the previous studies by attempting to compare the difference in performance between the experiment and control units. The results of this study with respect to positive HRAV impact on improved unit performance are inconclusive. The apparent positive trend alluded to earlier is supportive of the findings of the previous studies.

It can be reasonably concluded that the HRAV has a definite positive impact in some areas of unit performance. It cannot be concluded, however, that the HRAV has positive impact or even that it has impact at all for all areas of unit performance. This is illustrated by the results obtained for the retention and ASI data cited above. It would seem that each performance indicator of interest would have to be examined individually to determine whether or not the HRAV has positive impact on unit performance.

One final implication of comparison of the results of testing for HRAV impact on retention and ASI performance is that the impact of the HRAV is more easily observable when performance indicator areas of more specific and immediate interest to the unit are included as specific goals of the HRAV. Such indicators are presumed to be items such as non-judicial punishment, retention, ASI's, etc. which are a direct reflection of the interest of the command.

While correlational studies provide interesting analyses of significant associations, they cannot impute causality.

Perceptions of organizational climate as derived during HRAV's can indeed be correlated with operational outputs, but causal impact cannot be inferred. Thus a more rigorous and complete analysis is in order. Proposals for such an analysis are offered in the next chapter.

D. SUMMARY OF THE RESULTS OF THIS STUDY

With certain reservations as noted in chapter IV, the methodology used for this study can be used to determine both how well the HRAV and related activities are performed and some degree of positive impact of the HRAV on unit operational performance. Though the original hypotheses were not sustained totally, the results obtained are reasonable. The results indicate that an HRAV evaluation tool can be devised. The methodology offered in this study can be used as the basis for construction of the instrument.

The results showed that HRAV effectiveness can indeed be assessed relatively objectively if certain conditions (outlined in the next chapter) exist. Additionally, evaluation of the conduct of the HRAV in this fashion can lead to other desirable by-products after sufficient cupporting data are accumulated.

The results of the calculations made to test the second hypothesis indicate that positive impact is observable but not yet provable. Unfortunately, this study was unable to draw a direct relationship between HRAV effectiveness and the resulting impact on unit operational performance.

Necessary data to bridge this step were not released to the author. It is, however, thought that the groundwork for establishing such a relationship has been done in the methodology offered in this study. If the approach offered herein is deemed to have merit, then further development and accumulation of sufficient appropriate data is anticipated to yield the necessary ingredients for the desired association to be amde.

Legitimate researchers must be given access to the data for a period long enough to gather longitudinal and cross tabulated information. Appropriate records must be kept of the effectiveness of the HRAV interventions.

VI. CONCLUSIONS AND RECOMMENDATIONS

That the purpose of this study, to provide a methodology with which to assess HRAV impact on unit operational performance, has been met is subject to verification by more rigorous development and application of the methods offered. The results obtained by this study are not conclusive, but they do indicate the potential efficacy of the methodology.

HRAV impact assessment should include consideration of how well the HRAV process is performed by HRM specialists who provide HRMSS services to operational units. Only after this question is answered can direct association between the HRAV and improved unit performance be attempted such that a causal relationship is clearly established with certainty. This study has provided a way to approach obtaining meaningful answers to both companion and sequentially related questions.

Lacking standard and specific criteria for evaluating the effectiveness of what is done by HRM specialists in a unit during the HRAV process, the use of questionnaires for both parties (HRMST and corresponding unit commanding officer) provides the HRMC/D a way to begin to establish evaluation criteria. If the questions asked of each party are properly designed to:

a. Provide the desired information, specifically; and

b. to reduce the possibility of perceptual and/or interpretive differences among the parties answering the

questions, then the answers by both parties are anticipated to provide information to the HRMC/D concerning the effectiveness of their product. Additionally, such information can yield the following desirable by-products:

1. A measure of effectiveness for how well the HRAV was done.

2. A way for HRM specialists to determine the strengths and weaknesses of the work they do.

3. A way for HRMC command level personnel to derive a percentage of effectiveness figure for HRMC/D mission accomplishment.

4. A way to objectively evaluate HRM specialist performance using standard, specifically defined criteria.

A great deal of data exists throughout the Navy concerning unit performance. It would seem to be relatively easy and inexpensive to assemble sufficient quantities of data for a given performance indicator and to determine HRAV impact upon specific operational performance by more rigorous application of the methods offered in this study. Additionally, it seems that more specific and more direct HRAV impact could be perceived under one or both of the following conditions:

a. The HRAV activities were directed to improved unit performance in some specifically defined area such as retention or Annual Supply Inspections.

b. Complete records were maintained concerning specifically what was done during an HRAV process in a given unit and what were the observed results. The methodology offered by this study can be used for either or both conditions following accumulation of sufficient appropriate data.

The direct association between how well the HRAV is accomplished by HRM specialists and its corresponding impact on improved unit performance was not completed for this study because the data on which such an association might be based were not released. That is, one would have to follow observable units for some time subsequent to their HRAV participation. One would have to know exactly what was done during the HRAV process such that a direct (or indirect) cause and effect relationship could be determined.

The unavailability of a sufficient quantity of complete records limits the conclusions one may draw concerning HRAV impact to general terminology such as, "It appears that the HRAV has positive impact." Though perhaps such a statement is intuitively true, this study has shown that it might not be absolutely true in all cases or for all performance indicators. What is needed is an evaluation design and the permission to use the available data in the design.

Furthermore, though it can be shown that the HRAV has probable general positive impact on improved unit operational performance, the lack of specific definition of what constitutes improved unit operational performance or

increased unit operational capability limits the conclusions that can be drawn. Though general conclusions might be sufficient for some situations, they also seem to be insufficient for others such as lower level management of the system on a day-to-day basis.

The question can be legitimately raised concerning the worth of attempting to obtain evaluation information of the specificity called for in this study given that the operating costs of the HRMC/D's are relatively insignificant. The answer to such a question is dependent on several considerations.

a. To what degree is the system accomplishing what it is designed to do? The answer presupposes that what the system is designed to do is generally known and accepted in specific terms. The results of this study suggest that such is not the case.

b. How serious is the desire to assess the impact of the system? From the amount of formal and informal research activity to evaluate the system being done at present, one can infer that there is a great deal of interest in system evaluation. However, in this author's opinion there seems to be a lack of central direction and coordination to the current research activity. Although organizational relationships are clearly defined in OPNAVINST 5300.6B [Ref. 4], the evaluation research efforts that are being conducted informally by each of the HRMC's seem to be more self-serving to the respective fleet organizations than to the entire

system. This can be explained perhaps by the assumption of different conditions unique to each fleet organization. It is contended, however, that, since the HRMSS is designed for application throughout the entire Navy, centralized general evaluation guidelines could be developed and standardized for use by all HRMC/D's and modified as necessary for specific local use as required by local conditions. From OPNAVINST 5300.6B, the logical originator of central guidance and coordination for system evaluation is the OP-01P position on the CNO staff.

c. Is the evaluation effort cost effective? The effort for this study required six months for completion by one part time researcher. It is contended that use of the approach offered in this study can be inexpensive (relative to the marginal cost of providing HRAV services to each unit), and it can be done using available in-house resources. The expertise required to use the methodology is relatively unsophisticated. Alternatively, the methodology also lends itself to computer processing to yield general information on a periodic basis. In addition, the basic approach offered by this study can be developed more rigorously by one fully qualified statistician who is also available from in-house (Navy) personnel assets.

d. How much time will be required? If the assumption that a typical HRMC can provide HRAV services to approximately 120 units annually is reasonably accurate, it is also assumed

that those units probably include nearly all the different command types and conditions in which the HRAV is applied. It is thought, therefore, that a serious effort of approximately one year's duration and including all the HRMC/D's would provide sufficient data to evaluate the HRAV and its impact.

It is therefore recommended:

1. That the purpose and objectives of the HRMSS be specifically defined and promulgated.

2. That the effort made to evaluate the system be guided and coordinated centrally by OP-01P.

3. That the basic approach offered in this study be developed more rigorously using in-house resources and that it be implemented, after sufficient trial, throughout the entire system.

4. That the HRMC/D's be tasked to maintain appropriate records of their activities in some standard form along the lines suggested by this study.

5. That whatever evaluation approach is used be standardized for use by all cognizant parties such that there is agreement and common understanding among all concerning what is required.

If these recommendations are followed, it is anticipated that after sufficient time and serious effort, system managers will have the information necessary to evaluate the programs, their effectiveness, their impact, and the

performance of the personnel who fill the role of HRM specialist. Additionally, such information can be used to effect efficient allocation of monetary and personnel resources, to maintain system policy and procedure currency with respect to continually changing fleet requirements, and to predict both individual and unit performance with some degree of certainty.

It is recognized that the methodology offered by this study is but a small portion of the research that could be accomplished with respect to the HRMSS. Interestingly, two documents already exist that indicate work along the lines suggested by this study was begun. These are both unpublished reports entitled respectively:

a. "Proposed Goals and Objectives of the Navy Human Resource Management Support System." [Ref. 17]

b. "Human Resource Management Symposium," 10-11 January 1976. [Ref. 18]

The first report seems to strive at the specificity called for by this study, and the document would be a convenient starting point for specific definition and promulgation of the system's objectives. The second report outlines in some detail the requirements for operation and evaluation of the HRMSS on a Navy-wide basis. It, too, provides a convenient starting point for more rigorous and detailed research.

The following general plan is offered to provide the basis of a long term research effort for approximately five years.

a. Fiscal Year 1977

1. Define HRMSS goals and objectives specifically

Synopsis: This research would provide detailed examination of present goals and objectives, define requirements specifically, and revise system goals and objectives as necessary with maximum specificity.

Estimated Requirements:

Time: Two weeks

Personnel: HRMC command level representatives
Fleet CINC staff representatives
OP-01P
Pers-6

Cost Factors: Personnel time
Travel and per diem

Location: HRMC San Diego, or NPRDC

2. Develop and Field Test HRAV Evaluation Rating Questionnaire

Synopsis: Using this study as a basis, develop a proper evaluation rating instrument to gather desired information and reduce the possibility of perceptual or interpretive differences among those who answer the questions.

Estimated Requirements:

Time: Development - 2 weeks
Reproduction and distribution - 2 weeks
Trial period - 6 months
Analysis - 1 month
Modification/Implementation - 2 months

Personnel: Pers - 6

Cost Factors: Personnel time
Travel/per diem
Clerical
Distribution

Location: All HRMC/D

3. Collect data for impact study in area(s) of interest

Synopsis: Using this study as a basis, design an experiment for rigorous application of the offered methodology with proper control of variables.

Estimated Requirements:

Time: One year

Personnel: Fleet CINC staff
HRMC/D

Cost Factors: Personnel time
Computer services

Location: The three major fleets and the shore establishment.

b. Fiscal Year 1978

1. Analysis of data obtained for impact study

Synopsis: Using this study as a basis and rigorous statistical analysis techniques, determine the degree of HRAV impact in quantifiable terms.

Estimated Requirements:

Time: Six months

Personnel: NPRDC

Cost Factors: Personnel time
Computer services

Location: NPRDC San Diego

Estimated Requirements:

Time: Six months
Personnel: Fleet CINC staff
NAVPERS
OP-01P
Pers - 6
Cost Factors: Personnel time
Billet assignment opportunity
HRM subspecialist training
Location: NAVPERS

3. Employment of HRM specialist (Feedback to HRM School)

Synopsis: This research would examine current employment of HRM specialists in field commands to determine the relevance of their initial training.

Estimated Requirements:

Time: Six months
Personnel: HRMC/D command level
Fleet CINC staff
HRM School analysts
Cost Factors: Personnel time
Location: HRM School Memphis

4. Evaluation of source program HRM training

Synopsis: This research would examine whether what is being taught in access point training conforms to system goals and objectives, the competence of the instructors, and the long term affects of this training for personnel in the workaday situation.

Estimated Requirements:

Time: One year
Personnel: NPRDC
Pers - 6
HRM School Memphis
Cost Factors: Personnel time
Data gathering and analysis
Revision of training syllabi
Retraining of HRM instructors
Location: All major access points

d. Fiscal Year 1980

1. HRMSS change of direction

Synopsis: This research would examine other areas of potential growth for the HRMSS once the initial exposure of the entire Navy is complete. It would also examine future employment of HRM specialists.

Estimated Requirements:

Time: One year
Personnel: OP-01P
Fleet CINC staff
HRMC/D command level
Cost Factors: Personnel time
Research and Development
Location: OP-01P

2. Decision point concerning system use

Synopsis: No research required. It seems that this period would constitute a major milestone in the system's history. The initial job is anticipated to be completed by this time - that is, all commands will have experienced at least one HRM cycle. The question then is, "Where do we go from here?"

Estimated Requirements:

Time: Two months

Personnel: OP-01P
Fleet CINC
Pers - 6

Cost Factors: Personnel time
Opportunity costs of maintaining system operation

Location: OP-01P

e. Fiscal Year 1981

1. HRMSS redefinition (major overhaul)

Synopsis: Once the initial use of the system is completed, decisions must be made concerning future use of the system. If the HRMSS is to remain a useful and viable tool for the Navy, it seems that it would find application in other areas of interest. The research done using this general plan in the previous four year period should provide ample information on which to base these decisions. Once the necessary decisions are made, then it is assumed that the cycle begins all over. The cycle is envisioned to have the following general form:

(a) Decision made
(b) Decision Implemented
(c) System operation and monitoring
(d) System evaluation
(e) System modification
(f) Overhaul

This research plan (summarized in flow chart form in Figure 7 on the next page) provides only the "bare bones" of necessary research for the HRMSS. It is offered as an example of a structural framework on which system research efforts could be built for the next five years.

FIVE YEAR RESEARCH PLAN FLOW DIAGRAM

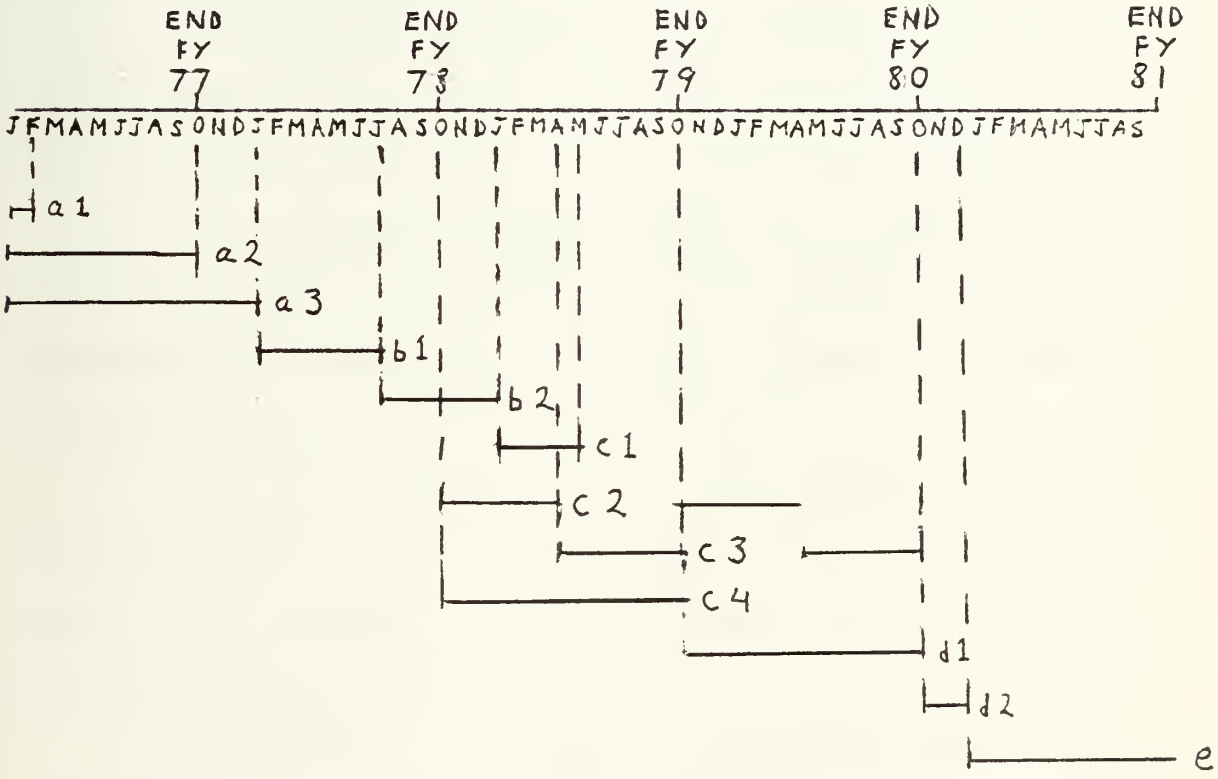


Figure 7

Other areas of potential research with respect to the HRMSS are:

a. Aspects of the general Navy environment which may not be conducive to realization of the goals and objectives of the HRMSS.

b. Development of appropriate, specific, and standard HRMSS inspection requirements which are generally applicable at all levels.

c. Development of methodology to ensure the professional competence of personnel returning to billets of normal duty subsequent to a tour of duty within the HRMSS.

d. Development of an evaluation and a reward system which ensures that personnel assigned to HRMSS billets remain promotionally competitive with their contemporaries who are assigned to more conventional billets.

e. A study to determine the applicability of HRMSS evaluation techniques to other essentially socially oriented areas of Navy endeavor such as personnel selection and performance assessment.

f. Development of a plan to terminate the HRMSS as an entity and to incorporate the current system resources into more normal command channels. This presupposes that the system has a limited purpose and scope which, when these are fulfilled, will indicate that the system is no longer necessary. Though this author does not envision the system outliving its usefulness for some time yet, the possibility

in the future (lacking any system growth potential) is worthy of consideration and preparation.

These few areas of possible further research are meant to be representative only, and this list is not assumed to be all inclusive. It is contended, however, that the necessary personnel assets and expertise are already available within the Navy to pursue studies in any area of interest with respect to the HRMSS. Assuming seriousness of purpose, central guidance and coordination, maintenance of appropriate records, common understanding and cooperation among all cognizant parties, specifically defined goals and objectives, and access to data, it is both possible and feasible to prove that the HRMSS can and is realizing its great potential to effect general and genuine Navy improvement.

APPENDIX A

Exhibit 1 - HRAV Evaluation Questionnaire
(Commanding Officer Form)

Exhibit 2 - HRAV Evaluation Questionnaire
(HRMST Form)

Exhibit 3 - Letter of Request to HRMC Commanding Officer
for Trial Use of the Questionnaires

Exhibit 1

HUMAN RESOURCE MANAGEMENT SUPPORT SYSTEM
PROCESS EFFECTIVENESS QUESTIONNAIRE

Please answer all questions in the enclosed questionnaire. All questions ask to what extent you think various aspects of the Human Resource Management Support System were performed effectively within your command during the Human Resource Availability (HRAV) recently participated in by your command.

This questionnaire is designed to help us to maintain our services such that they are always responsive to the realistic concerns of commanding officers and also in keeping with the spirit and intent of the Navy Human Resource Management Support System.

Please signify your answer to each of the questions by marking the appropriate box. Additional space is provided for you to make any added comments you desire.

HUMAN RESOURCE MANAGEMENT PROCESS EFFECTIVENESS QUESTIONNAIRE

As a result of all associated HRAV activities (from initial visit rough HRAV), to what extent did you have a clear understanding and preciation of the concepts of the U.S. Navy's Human Resource nagement Support System?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

As a result of all associated HRAV activities, to what extent did have a greater appreciation for how the HRAV could be used to t advantage for your command?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

To what extent do you think the Human Resource Management Support m (HRMST) assigned to your command provided you appropriate and quate assistance at each stage of the HRAV process?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

To what extent did the feedback of survey data you received icate a thorough examination of the data and reasonable erpretation of the data by the assigned HRMST?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

To what extent did the actual HRAV activities conducted within r command conform with the requirements of the Navy Human Resource agement Support System (OPNAVINST 5300.6 series)?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

To what extent did the HRAV activities conducted within your mmand lead to results you had been led to expect by the Navy Human source Management Support System and/or the assigned HRMST?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

To what extent do you think your Command Action Plan, developed a result of your command's participation in the HRAV will produce gnificant and measurable improved performance within your command the areas covered?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

To what extent was the scheduling of all associated HRAV activities nitial visit through HRAV) flexible enough to accommodate your mmand's normal operating requirements/routine with minimum disruption?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

To what extent do you think the members of the assigned HRMST ered their efforts in support of the best interests of your mmand?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

To what extent do you think your command's participation in the AV will result in lasting improved effectiveness of the command as ible?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

Exhibit 2

HUMAN RESOURCE MANAGEMENT PROCESS EFFECTIVENESS QUESTIONNAIRE
(Form 2: for use by the HRMST leader)

To what extent did assigned HRMST members attempt to ensure that participating unit CO (and other appropriate unit personnel) had adequate understanding and appreciation of the concepts of the Navy Human resource Management Support System and what participation in HRAV could do for the unit?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

To what extent was assignment of HRMST members made with respect to team member experience in the unit type?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

To what extent did you as HRMST leader concur with survey analysis & feedback design done by the assigned team for the participating unit's survey?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

To what extent did assigned team members attempt to ensure that HRAV activities conducted were in conformance with the objectives of the Navy Human Resource Management Support System?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

To what extent were expected HRAV activity results achieved (i.e. with respect to meeting workshop/training objectives, etc.)?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

5. To what extent do you think the skills necessary for continuing effectiveness in problem identification and solution were transferred adequately to appropriate personnel in the participating unit?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

6. To what extent were attempts made by assigned HRMST members to schedule associated HRAV activities to accommodate the participating unit's normal operating requirements/routine with minimum disruption?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

7. To what extent did assigned HRMST members exert their efforts to support the participating unit's desires/perceived needs in addition to the requirements of the Navy Human Resource Management Support System?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

8. As a result of its participation in the HRAV, to what extent do you think the unit's overall performance will be more effective?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

10. To what extent do you think active participation of the unit CO and other designated appropriate personnel contributed to the successfulness of the HRAV in which they participated?

To a very little extent	To a little extent	To some extent	To a great extent	To a very great extent

11. If your HRMST were to be assigned another unit of the same type as this, what would you do differently? Please explain.

ne type of unit concerned with in this report is: Check one;

urface
ubsurface
aval Air
ast Support
ther

Exhibit 3

LT Raymond C. Highsmith
U.S. Naval Postgraduate School
Monterey, California 93940

Commanding Officer
U.S. Navy Human Resource
Management Center
U.S. Naval Base, Pearl Harbor
FPO San Francisco, Calif. 96610 14 April 1976

Dear Captain,

As my postgraduate school thesis project, I am attempting to determine a way to assess the impact of the HRAV in those operational units in which it is conducted. The work done so far has produced two companion questions:

1) How can we know that the HRAV was done well?
2) What is the impact of the HRAV in the unit with respect to recognized bonifide navy management issues?

Providing an approach to answer the second of these questions will be the major thrust of the thesis. Though the purpose of this letter is to ask your assistance in answering the first question, it is hypothesized that providing a way to answer the second will close the loop in evaluation of the entire HRM cycle. This will be done by examining unit performance in such areas as retention, non-judicial punishment rates, Annual Supply Inspection scores, etc.

Enclosed, please find several copies of two forms of a questionnaire I have developed to assess how well an HRAV is done. It is envisioned that the two questionnaires will be used as a set, with the participating unit commanding officer completing one and the HRMST team leader completing the other. The results of the two questionnaires will then be compared and correlated with reported operational data. It is anticipated that completion of the forms will yield the following results:

a) A measure of effectiveness for how well the HRAV was done.
b) A way for HRM specialists to determine the strengths and weaknesses of the work they do.
c) A way for HRMC command level personnel to derive a percentage of effectiveness figure for HRMC/D mission accomplishment.
d) A way to objectively evaluate HRM specialist effectiveness and competence via standard criteria.

The two questionnaires ask essentially the same questions in the same order on both forms; however, the focus of the questions is different in each, attempting to reflect possible differences in perception and biases of the two parties (i.e. HRMC/D on the one hand and the participating unit commanding officer on the other). The hypothesis here is that the answers

ENCLOSURE (1)

to the questions on the two forms will not be very different. If the answers are significantly different, the assumed indication is that these are areas which might bear closer examination.

The form for the participating unit commanding officer attempts to view the situation from his unique position. It is assumed that he is concerned only with the best interest of his command - regardless of what the Human Resource Management Support System and/or the assigned specialists think are his best interests. It is readily seen that this particular questionnaire places a large measure of the "burden of proof" onto the HRMC/D specialists.

The form for the HRMST team leader assumes that his broader view and knowledge of policy concerned with the Human Resource Management Support System makes his evaluation of a particular HRAV effort more meaningful than that of the assigned lead specialist. That is to say, he is in a more advantageous position to assess the effectiveness of what work is done by the specialists in a given command. Additionally, this form provides for possible differences in perception between the participating commanding officer and the HRMC/D specialists (i.e. though the specialists thought they did an effective job, the participating commanding officer might have thought otherwise: or, alternatively, the specialists may, in fact, have done the best possible job, but the command with whom they worked was not particularly supportive of the effort).

The questions in both forms were developed by me based on my nearly three years experience as an HRM specialist assigned to HRMC Norfolk. I have tried to capture the essence of the HRAV process while simultaneously attempting to keep the number of questions small so as not to burden either commanding officers or HRMST team leaders with a great demand on their time. The questions are designed to stand alone without the need for clarification. However, a narrative question has been added to each to make the answers to the basic questions more specifically and immediately useful to HRMC/D personnel concerned with process evaluation and improvement.

It is unknown at this point in time what the relative weights of the questions are. It is therefore anticipated that I will need to come back to you and your staff for a brief session of assigning appropriate weights to the questions once the data are in. It is envisioned that the scoring method finally adopted will be uncomplicated, such that this type of evaluation can readily be done "in-house" without the necessity of expensive and sophisticated models.

The confidentiality aspect of the Human Resource Management Support System is fully recognized and appreciated. The questions were designed with that in mind. Though I could be wrong, I do not think anyone's confidence will be violated by

ENCLOSURE (1)

completing these questionnaires. On the other hand, the questions were designed to be rather "hard-hitting" in order to fulfill my desire to build a system with which Human Resource Management Support System management personnel can evaluate their efforts tangibly and meaningfully.

I have covered a great deal of background before getting to the point. My request is that you use these questionnaires for the next few months on a trial basis with units scheduled to participate in an HRAV, having the participating commanding officer and the assigned HRMST team leader complete their applicable portions. Upon completion of as many forms as possible in the available time frame, I ask that you return the completed documents to me at one of the addresses indicated below. I ask further that each set of questionnaires returned be identified as a set through some system of marking such as A - A, B - B, etc., or 1 - 1, 2 - 2, etc.

I ask, also, that the questionnaires be tried both on immediate completion of the HRAV and (in selected cases) in some units approximately one month after completion of the HRAV if possible. The reason for this is that it is unknown either how time-oriented this information is or whether or not a time perspective of, say, one month will yield more meaningful results. Please identify those sets of questionnaires which are completed some time after the HRAV in this fashion.

It is requested that all completed forms be returned to me not later than 1 August 1976. I plan to complete my thesis by 1 November 1976 and will provide you a copy of the finished document.

Should you have any questions concerning this effort, I can be reached as follows:

LT Raymond C. Highsmith
U.S. Naval Postgraduate School
Monterey, California 93940
SMC # 1062
Autovon: 479-2056

Or LT Raymond C. Highsmith
111 Morrell Circle
Monterey, California 93940
Telephone: 408-373-7027

A final note:

Captain Baldwin of Pers-6 is aware of this project, though not of the specific form it is taking. Additionally, this effort parallels, to some degree, work being done by the U.S. Navy Personnel Research and Development Center, San Diego.

My thesis advisors are CDR R.A. McGonigal and LCDR R.L. Forbes, both of whom are fully experienced in the HRAV process, and both of whom have had a long association with the Human Resource Management Support System.

These questionnaires have been released informally to save time; however, they were released with the knowledge of my thesis advisors and other appropriate personnel of the U.S. Naval Postgraduate School.

I apologize for the extraordinary length of this letter, and I appreciate your time in reading it. Thanking you in advance for your effort in support of this project, I remain,

Very Respectfully,

Raymond C. Highsmith

Raymond C. Highsmith

ENCLOSURE (1)

APPENDIX B

Exhibit 1 - Data and Calculations for Returned Completed Sets of HRAV Evaluation Questionnaires

Exhibit 2 - Data and Calculations for Retention Rates of Selected COMNAVSURFPAC Units

Exhibit 3 - Data and Calculations for Annual Supply Inspection Scores for Selected COMNAVSURFPAC Units

Exhibit 1

APPENDIX B

DATA AND CALCULATIONS

Raw Data From HRAV Evaluation Questionnaires

SET	QUESTIONNAIRE ANSWERS - HRM/CO										TOTAL SCORE
	QUESTIONS										
n	1	2	3	4	5	6	7	8	9	10	HRM/CO
1	5/5	3/5	5/5	5/5	4/5	2/5	5/4	5/5	2/5	4/4	35/43
2	4/4	1/3	4/4	4/4	4/5	4/3	4/3	4/4	3/4	3/3	31/33
3	5/4	1/5	5/4	5/5	4/4	4/5	5/4	5/5	4/5	4/4	37/40
4	4/5	1/5	5/4	5/5	4/5	4/4	5/4	4/5	3/5	5/4	35/41
5	5/4	1/4	5/4	5/4	5/5	4/4	5/4	5/5	3/4	5/5	38/38
6	5/3	5/4	5/4	4/3	5/4	5/3	5/4	5/5	5/5	5/4	44/34
7	3/5	1/4	4/5	4/5	4/4	4/4	4/5	3/5	3/5	3/5	29/42
8	5/1	1/1	5/2	5/1	4/4	4/1	5/3	5/3	3/3	5/1	37/17
9	4/4	1/4	4/3	5/4	4/4	3/5	5/4	5/4	3/3	4/4	33/35
10	4/5	1/3	4/4	4/5	4/5	4/4	4/4	2/5	2/5	2/4	27/39
11	5/4	1/4	5/4	4/3	5/4	5/4	5/4	5/3	4/5	4/4	38/36
12	4/4	3/3	4/4	4/2	4/5	3/3	5/2	4/4	4/4	4/2	34/29
13	4/5	3/4	4/5	5/5	4/5	4/4	4/4	5/5	3/5	4/4	36/41
14	4/4	1/4	5/5	5/4	3/4	4/3	5/2	5/5	2/5	3/2	32/33
15	5/5	5/4	5/5	5/0	5/5	4/5	5/0	5/5	4/5	4/3	42/32
16	5/5	2/5	5/4	5/4	4/5	4/4	5/4	5/5	3/5	4/3	37/39
17	5/4	3/4	5/4	5/4	5/4	3/3	5/3	5/4	2/5	5/3	38/34
18	5/4	3/5	5/5	5/4	5/5	4/4	5/3	5/4	3/5	5/4	40/39
19	5/4	5/4	4/4	4/4	4/4	5/4	5/3	5/4	3/4	4/3	39/34
20	5/4	1/5	4/5	5/4	5/4	4/4	5/5	5/5	4/5	5/4	38/40
21	4/4	5/5	5/4	5/2	4/5	4/5	5/4	5/4	3/5	5/4	40/38
22	4/4	5/5	4/5	5/5	4/4	4/4	4/4	4/4	3/5	4/4	37/40
23	5/4	3/5	5/4	5/4	3/4	3/4	2/4	3/3	3/5	5/4	35/38
24	5/5	3/5	5/5	5/5	5/5	4/4	4/5	5/4	4/5	5/4	41/43
25	4/4	4/4	4/4	5/4	4/4	3/3	4/4	4/5	3/5	4/5	35/37
26	5/4	3/4	5/5	5/5	5/4	5/4	5/4	5/3	4/5	5/4	42/39
27	5/4	4/5	5/5	5/4	4/5	4/5	5/5	5/2	4/5	4/5	40/44

Table B-1

The total scores in the table above reflect elimination of questions number 7 and 8 from the HRMST and commanding officer questionnaires respectively. Comparison of individual question answers should not be attempted from table B-1 because the subject matter of questions with the same number on both forms is different. (see Appendix A)

HRAV Evaluation Questionnaire Regression Analysis Calculations [Ref. 19]

n	X	Y	XY	X^2	Y^2
1	35	43	1505	1225	1849
2	31	33	1023	961	1089
3	37	40	1480	1369	1600
4	35	41	1435	1225	1681
5	38	38	1444	1444	1444
6	44	34	1496	1936	1156
7	29	42	1218	841	1764
8	37	17	629	1369	289
9	33	35	1155	1089	1225
10	27	39	1053	729	1521
11	38	36	1368	1444	1476
12	34	29	986	1156	841
13	36	41	1476	1296	1681
14	32	33	1056	1024	1089
15	42	32	1344	1764	1024
16	37	39	1443	1369	1521
17	38	34	1292	1444	1156
18	40	39	1560	1600	1521
19	39	34	1326	1521	1156
20	38	40	1520	1444	1600
21	40	38	1520	1600	1444
22	37	40	1480	1369	1600
23	35	38	1330	1225	1444
24	41	43	1763	1681	1849
25	35	37	1295	1225	1369
26	42	39	1638	1764	1521
27	40	44	1760	1600	1936
TOTAL	990	998	36595	36714	37846

Table B-2

In Table B-2 above, X represents the total score obtained on the HRMST questionnaire. Y represents the total score obtained on the corresponding commanding officer questionnaire. XY is the product of the two corresponding scores. X^2 and Y^2 are obvious.

HRAV Questionnaire Regression Analysis (continued)

From basic statistics it can be shown that:

Mean value of X is $\bar{X}$ $\qquad \bar{X} = \dfrac{\text{Total X}}{n} = \dfrac{990}{27} = 36.67$

Mean value of Y is $\bar{Y}$ $\qquad \bar{Y} = \dfrac{\text{Total Y}}{n} = \dfrac{998}{27} = 36.96$

Mean value of $\overline{XY}$ is $\overline{XY}$

$$\overline{XY} = (\bar{X})(\bar{Y}) = 36.67 \times 36.96 = 1355.32$$

It can also be shown that:

$$Y_c = a + bX$$

where

$$b = \frac{\text{Total XY} - n\overline{XY}}{\text{Total X} - n\bar{X}^2} \qquad \text{and} \qquad a = \bar{Y} - b\bar{X}$$

$$b = \frac{36595 - 27x1355.32}{36714 - 27x(36.67)} \qquad a = 36.96 - (.0033)(36.67)$$

$$b = \frac{1.36}{407.40} = 0.0033 \qquad a = 36.8390 = 36.84$$

Therefore:

$$Y_c = 36.84 + .0033X$$

The small value of the slope (b) indicates a "flat" slope for the regression line calculated above to describe the plotted pairs of points in figure 6 of the text. The flat slope, in turn, indicates little correlation between the two sets of scores. This is verified on the following page.

HRAV Questionnaire Correlation Test

For a flat slope, the corresponding coefficient of correlation (r) between values of X and Y should be close to a value of zero.

It can be shown that the coefficient of correlation is given by:

$$r = \frac{a \times (\text{Total } Y) + b \times (\text{Total } XY) - n\bar{Y}^2}{\text{Total } Y^2 - n\bar{Y}^2}$$

and using the calculated values for the variables shown in table B-2 and on the last page, we have:

$$r = \frac{(36.839 \times 998) + (.0033 \times 36595) - 27 \times (36.96)^2}{37846 - 27 \times (36.96)}$$

$$r = \frac{2.963}{962.887} = 0.0031$$

Therefore, the supposition of little correlation between the two sets of scores is verified.

Standard Error of the Estimate

That the regression line Y = 36.84 + .0033X provides the best description for the plotted points can be verified by calculation of the standard error of the estimate $S_{y:x}$. It is anticipated that $S_{y:x}$ will have a small value if the regression line provides a good "fit" for the plotted points. It can be shown that:

$$S_{y:x} = \left[\frac{(\text{Total } Y^2) - a \times (\text{Total } Y) - b \times (\text{Total } XY)}{n - 2}\right]^{\frac{1}{2}}$$

$$S_{y:x} = \left[\frac{37846 - (36.84)(998) - (.0033)(36595)}{25}\right]^{\frac{1}{2}} = 1.28$$

Chi Square Test for HRAV Effectiveness Rating

Competing hypotheses:

H_0: The comparison of total scores obtained from completion of evaluation questionnaires by commanding officers and HRMST team leaders at the end of an HRAV will show no material differences in perceptions of the two parties.

H_1: The comparison of total scores ... will show material differences in the perceptions of the two parties.

Observed Frequency (f_o)

HRMST Scores (Total)	Range of Total Scores	Commanding Officer Scores (Total)					
		16-20	26-30	31-35	36-40	41-45	Total
	26-30	0	0	0	1	1	2
	31-35	0	1	3	2	2	8
	36-40	1	0	2	8	2	13
	41-45	0	0	2	1	1	4
	Total	1	1	7	12	6	27

Table B-3

Since we are interested in determining whether the hypothesis of no material difference in total scores is tenable, we proceed to calculate the expected frequencies by assuming that the null hypothesis (H_o) is true.

From the totals of Table B-3 above in the right hand column, we observe that 2/27 = 0.074% of the HRMST total scores were in the 26-30 range.

If H_o is true; that is, if there are no material differences in the scores obtained by commanding officers and HRMST team leaders, then it shoulf also be true that 2/27 = 0.074% of the commanding officers, whose total scores are in the 16-20 range, will correspond to HRMST's whose total scores are in the 26-30 range: 2/27 of the commanding officers whose total scores are in the 26-30 range should correspond to HRMST's whose total scores were in the 26-30

range: 2/27 of the commanding officers whose total scores are in the 31-35 range correspond to HRMST's whose total scores are in the 26-30 range, etc.

From this reasoning we can construct a table of expected frequencies by using the general relation:

$$f_e = \frac{(\text{Total of row (i)})(\text{Total of column (j)})}{\text{Grand Total}}$$

where:

f_e is the expected frequency

Total row (i) is the total of frequencies in the i_{th} row.

Total column (j) is the total of frequencies in the j_{th} column

Grand Total = n = 27

Applying this relation , we obtain the expected frequencies shown in Table B-4 below.

Expected Frequency (f_e)

HRMST Scores	Range of Total Scores	Commanding Officer Scores					
		16-20	26-30	31-35	36-40	41-45	Total
	26-30	.0741	.0741	.5186	.8892	.4446	2.0006
	31-35	.2963	.2963	2.0741	3.5556	1.7778	8.0001
	36-40	.4815	.4815	3.3704	5.7780	2.8890	13.0004
	41-45	.1481	.1481	1.0370	1.7772	.8886	3.9990
	Total	1.0000	1.0000	7.0001	12.0000	6.0000	27.0001

Table B-4

How great a difference between total scores of commanding officers and HRMST team leaders can be tolerated before we reject the hypothesis that there will be no material differences in the two scores?

We use the Chi Square test to answer this question by comparing the observed frequencies with the expected

frequencies derived under the assumption of the truth of the null hypothesis. It can be shown that the Chi Square test is given by the relation:

$$\chi^2 = \text{Total}\left[\frac{(f_o - f_e)^2}{f_e}\right]$$

where:

f_o is the observed frequency

f_e is the expected frequency

The computed value of χ^2 takes on different values from sample to sample. Therefore, we wish to know, "Is the computed value of χ^2 so large that we are required to reject the null hypothesis (H_o) that there will be no material difference in total scores obtained by commanding officers and HRMST team leaders on evaluation questionnaires completed after an HRAV by both parties?" That is, are the aggregate discrepencies between the observed and expected frequencies so large that we are unwilling to attribute them to chance, and therefore be forced to reject the null hypothesis?

To apply the Chi Square test we must know the number of degrees of freedom (df).

It can be shown that for any table of the form of Tables B-3 and B-4 shown above, the number of degrees of freedom is given by:

$$df = (r-1)(c-1)$$

where:

r is the number of rows in the table

c is the number of columns in the table

In our case, $df = (4-1)(5-1) = 12$.

Performing the necessary calculations, we obtain the following tables:

f_o	f_e	$f_o - f_e$	$(f_o - f_e)^2$	$(f_o - f_e)^2/f_e$
0	.0741	- .0741	.0055	.0742
0	.2963	- .2963	.0878	.2964
1	.4815	.5185	.2688	.5583
0	.1481	- .1481	.0219	.1479
0	.0741	- .0741	.0055	.0742
1	.2963	.7037	.4952	1.6713
0	.4815	- .4815	.2318	.4814
0	.1481	- .1481	.0219	.1479
0	.5186	- .5186	.2689	.5185
3	2.0741	.9259	.8573	.4133
2	3.3704	- 1.1704	1.3698	.4064
2	1.0370	.9630	.9274	.8943
1	.8892	.1108	.0123	.0138
2	3.5556	- 1.5556	2.4199	.6806
8	5.7780	2.2220	4.9373	.8545
1	1.7772	- .7772	.6040	.3399
1	.4446	.5554	.3085	.6939
2	1.7778	.2222	.0494	.0278
2	2.8890	- .8890	.7903	.2736
1	.8886	.1114	.0124	.0140
27	27.0001	.1999		$\chi^2 = 8.5821$

Table B-5

Thus the computed value of χ^2 is:

$$\chi^2 = \text{Total}((f_o - f_e)^2/f_e) = 8.5821$$

The number of degrees of freedom is df = 12 (as calculated above).

From tabulated values of χ^2 in Ref. 16 we find that the critical value of χ^2 at the 0.01 level of significance is 26.217. This means that if H_o is true, the probability of observing a χ^2 value greater than 26.217 is 0.01. Or, in other terms, if total scores of commanding officers and HRMST team leaders obtained on evaluation questionnaires completed after an HRAV are not materially different, an aggregate discrepancy between the observed and expected frequencies larger than a χ^2 value of 26.217 would occur

only one time in 100.

The decision rule for our case can thus be stated:

1. If $\chi^2 > 26.217$, reject H_0
2. If $\chi^2 \leqq 26.217$, accept H_0

Since the computed value of $\chi^2 = 8.5821$ is less than the tabulated critical value of 26.217 at the 0.01 level of significance for df = 12, the null hypothesis (H_0) is accepted.

Exhibit 2

Retention Data and Calculation of Normalized Retention Scores for a Random Sample of 26 Units Under the Administrative Control of Commander Naval Surface Forces, U.S. Pacific Fleet.

The periods of observation are as follows:

a. Quarter 2, Fiscal Year 1975
b. Quarter 3, Fiscal Year 1975
c. Quarter 4, Fiscal Year 1975
d. Quarter 1, Fiscal Year 1976
e. Quarter 2, Fiscal Year 1976

For each period, the following are noted and/or calculated:

a. Number of eligible personnel reenlisted - X
b. Number of units observed - n
c. Mean number of eligible personnel reenlisted for the entire sample - $\bar{X}$
d. $(X - \bar{X})$
e. $(X - \bar{X})^2$
f. Total X
g. Total $(X - \bar{X})^2$
h. Standard deviation for the sample - S
i. Normalized Retention score - t

From basic statistics (Ref. 18) it can be shown that:

$$\bar{X} = \frac{\text{Total X}}{n}$$

$$S = \left[\frac{\text{Total } (X - \bar{X})^2}{n - 1}\right]^{\frac{1}{2}}$$

$$t = \frac{(X - \bar{X})}{S}$$

With the reasoning above in mind, the next five tables show the results of the indicated calculations.

Retention Data and Calculations - Quarter 2, Fiscal Year 1975

Unit	X	$X - \bar{X}$	$(X - \bar{X})^2$	$t = (X - \bar{X})/S$
1	20	3.3462	11.1971	.3056
2	13	- 3.6538	13.3503	- .3337
3	22	5.3462	25.5819	.4883
4	5	- 11.6538	135.8111	- 1.0644
5	49	32.3462	1046.2766	2.9543
6	40	23.3462	545.0451	2.1323
7	13	- 3.6538	13.3503	- .3337
8	17	.3462	.1199	.0316
9	11	- 5.6538	31.9655	- .5164
10	12	- 4.6538	21.6579	- .4251
11	27	10.3462	107.0439	.9450
12	13	- 3.6538	13.3503	- .3337
13	12	- 4.6538	21.6579	- .4251
14	10	- 6.6538	44.2731	- .6077
15	7	- 9.6538	93.1959	- .8817
16	39	22.3462	499.3527	2.0410
17	19	2.3462	5.5047	.2143
18	17	.3462	.1199	.0316
19	5	- 11.6538	135.8111	- 1.0644
20	16	- .6538	.4275	- .0597
21	10	- 6.6538	44.2731	- .6077
22	9	- 7.6538	58.5807	- .6991
23	7	- 9.6538	93.1959	- .8817
24	12	- 4.6538	21.6579	- .4251
25	14	- 2.6538	7.0427	- .2424
26	14	- 2.6538	7.0427	- .2424
Total	433		2996.8847	

Table B-6

$n = 26$

$\bar{X} = \text{Total } X/n = 433/26 = 16.6538$

$\text{Total } (X - \bar{X})^2 = 2996.8847$

$S = (\text{Total } (X - \bar{X})^2/(n - 1))^{\frac{1}{2}}$

$S = (2996.8847/25)^{\frac{1}{2}} = 10.9488$

Retention Data and Calculations - Quarter 3, Fiscal Year 1975

Unit	X	$X - \bar{X}$	$(X - \bar{X})^2$	$t = (X - \bar{X})^2/S$
1	23	.4615	.2130	.0297
2	17	- 5.5385	30.6750	- .3567
3	26	3.4615	11.9820	.2229
4	5	- 17.5385	307.5990	- 1.1296
5	72	49.4615	2446.4399	3.1857
6	58	35.4615	1257.5179	2.2840
7	16	- 6.5385	42.7520	- .4211
8	25	2.4615	6.0590	.1585
9	11	- 11.5385	133.1370	- .7432
10	17	- 5.5385	30.6750	- .3567
11	32	9.4615	89.5200	.6094
12	18	- 4.5385	20.5980	- .2923
13	19	- 3.5385	12.5210	- .2279
14	13	- 9.5385	90.9830	- .6144
15	11	- 11.5385	133.1370	- .7432
16	50	27.4615	754.1340	1.7687
17	31	8.4615	71.5970	.5450
18	23	.4615	.2130	.0297
19	14	- 8.5385	72.9060	- .5499
20	22	.5385	.2900	.0347
21	13	- 9.5385	90.9830	- .6144
22	11	- 11.5385	133.1370	- .7432
23	11	- 11.5385	133.1370	- .7432
24	13	- 9.5385	90.9830	- .6144
25	14	- 8.5385	72.9060	- .5499
26	21	- 1.5385	2.3670	- .0991
Total	586		6026.4618	

Table B-7

$n = 26$

$\bar{X}$ = Total X/n = 586/26 = 22.5385

Total $(X - \bar{X})^2$ = 6026.4618

$S = (\text{Total } (X - \bar{X})^2/(n-1))^{\frac{1}{2}}$

$S = (6026.4618/25)^{\frac{1}{2}} = 15.5261$

Retention Data and Calculations - Quarter 4, Fiscal Year 1975

Unit	X	$X - \bar{X}$	$(X - \bar{X})^2$	$t = (X - \bar{X})/S$
1	28	- 2.6154	6.8403	- .1356
2	19	- 11.6154	134.9176	- .6022
3	33	2.3846	5.6863	.1236
4	24	- 6.6154	43.7635	- .3430
5	102	71.3846	5095.7611	3.7010
6	74	33.3846	1114.5315	1.7309
7	26	- 4.6154	21.3019	- .2393
8	31	.3846	.1479	.0199
9	20	- 10.6154	112.6867	- .5504
10	21	- 9.6154	92.4559	- .4985
11	42	11.3846	129.6091	.5902
12	24	- 6.6154	43.7635	- .3034
13	19	- 11.6154	134.9176	- .6022
14	20	- 10.6154	112.6867	- .5504
15	19	- 11.6154	134.9176	- .6022
16	62	31.3846	984.9931	1.6272
17	40	9.3846	88.0707	.4866
18	28	- 2.6154	6.8403	- .1356
19	15	- 15.6154	243.8407	- .8096
20	31	.3846	.1479	.0199
21	17	- 13.6154	185.3791	- .7059
22	16	- 14.6154	213.6099	- .7576
23	17	- 13.6154	185.3791	- .7059
24	20	- 10.6154	112.6867	- .5504
25	22	- 8.6154	74.2512	- .4467
26	26	- 4.6154	21.3019	- .2393
Total	796		9300.4878	

Table B-8

$n = 26$

$\bar{X}$ = Total X/n = 796/26 = 30.6154

Total $(X - \bar{X})^2$ = 9300.4878

$S = (\text{Total } (X - \bar{X})^2/(n - 1))^{\frac{1}{2}}$

$S = (9300.4878/25)^{\frac{1}{2}} = 19.2878$

Retention Data and Calculations - Quarter 1, Fiscal Year 1976

Unit	X	$X - \bar{X}$	$(X - \bar{X})^2$	$t = (X - \bar{X})/S$
1	5	- 2.0385	4.1555	- .3363
2	6	- 1.0385	1.0785	- .1713
3	9	1.9615	3.5475	.3236
4	6	- 1.0385	1.0785	- .1713
5	21	13.9615	194.9235	2.3031
6	26	18.9615	359.5385	3.1280
7	8	.9615	.9245	.1586
8	2	- 5.0385	25.3865	- .8361
9	2	- 5.0385	25.3865	- .8361
10	8	.9615	.9245	.1586
11	6	- 1.0385	1.0785	- .1713
12	2	- 5.0385	25.3865	- .8361
13	6	- 1.0385	1.0785	- .1713
14	6	- 1.0385	1.0785	- .1713
15	6	- 1.0385	1.0785	- .1713
16	20	12.9615	168.0005	2.1382
17	7	- .0385	.0015	- .0064
18	2	- 5.0385	25.3865	- .8361
19	4	- 3.0385	9.2425	- .5012
20	5	- 2.0385	4.1555	- .3363
21	5	- 2.0385	4.1555	- .3363
22	2	- 5.0385	25.3865	- .8361
23	4	- 3.0385	9.2425	- .5012
24	6	- 1.0385	1.0785	- .1713
25	7	- .0385	.0015	- .0064
26	2	- 5.0385	25.3865	- .8361
Total	183		918.6820	

Table B-9

$n = 26$

$\bar{X}$ = Total X/n = 183/26 = 7.0385

Total $(X - \bar{X})^2$ = 918.6820

$S = (\text{Total } (X - \bar{X})^2/(n - 1))^{\frac{1}{2}}$

$S = (918.6820/25)^{\frac{1}{2}} = 6.0620$

Retention Data and Calculations - Quarter 2, Fiscal Year 1976

Unit	X	$X - \bar{X}$	$(X - \bar{X})^2$	$t = (X - \bar{X})/S$
1	9	- 4.5769	20.9471	- .4317
2	11	- 2.5769	6.6404	- .2430
3	13	- .5769	.3328	- .0544
4	11	- 2.5769	6.6404	- .2430
5	39	25.4231	646.3340	2.3978
6	50	36.4231	1326.6422	3.4353
7	17	3.4231	11.7176	.3152
8	9	- 4.5769	20.9471	- .4317
9	8	- 5.5769	31.1018	- .5260
10	18	4.4231	19.5638	.4172
11	21	7.4231	55.1024	.7001
12	8	- 5.5769	31.1018	- .5260
13	9	- 4.5769	20.9471	- .4317
14	9	- 4.5769	20.9471	- .4317
15	7	- 6.5769	43.2556	- .6203
16	27	13.4231	180.1796	1.2660
17	15	1.4231	2.0252	.1342
18	6	- 7.5769	57.4094	- .7146
19	5	- 8.5769	73.5632	- .8089
20	9	- 4.5769	20.9471	- .4317
21	10	- 3.5769	12.7942	- .3374
22	7	- 6.5769	43.2556	- .6203
23	9	- 4.5769	20.9471	- .4317
24	15	1.4231	2.0252	.1342
25	7	- 6.5769	43.2556	- .6203
26	4	- 9.5769	91.7170	- .9033
Total	353		2810.3604	

Table B-10

$n = 26$

$\bar{X}$ = Total X/n = 353/26 = 13.5769

Total $(X - \bar{X})^2$ = 2810.3604

$S = (\text{Total } (X - \bar{X})^2 / (n - 1))^{\frac{1}{2}}$

$S = (2810.3604/25)^{\frac{1}{2}} = 10.6026$

From the sample of units shown in Tables B-6 through B-10 a smaller sample was drawn consisting of six units who had experienced the HRAV during Quater 3, Fiscal Year 1975 and six units that had not experienced an HRAV over the entire period of observation. Then, for both sets of units in the smaller sample, movement along the normal scale was calculated. An example serves to illustrate the method used.

For Unit number one:

t score (for Quarter 2, Fiscal Year 1975) = .3056
t score (for Quarter 3, Fiscal Year 1975) = .0297
Movement = -.2759

The following table shows the results of these calculations for the reduced sample:

HRAV Unit	Quarter 2 to Quarter 3 Fiscal '75	Quarter 3 to Quarter 4 Fiscal '75	Quarter 4 Fiscal '75 to Quarter 1 Fiscal '76	Quarter 1 to Quarter 2 Fiscal '76
1	- .2759	- .1653	- .2007	- .0954
2	- .0230	- .2455	.4309	- .0717
10	.0684	- .1418	.6571	.2586
12	.0414	- .0111	- .5327	.3101
19	.5145	- .2597	.3084	- .3077
23	.1385	.0373	.2047	.0695
Total	.4639	- .7861	.8677	.1644
Non-HRAV Unit				
3	- .2654	- .0993	.2000	- .3780
4	- .0652	.7866	.1717	- .0717
5	.2314	.5153	-1.3979	.0947
6	.1517	- .5531	1.3971	.3073
8	.1269	- .1386	- .8560	.4044
18	- .0019	- .1653	- .7005	.1215
Total	.1775	.3456	-1.1856	.4782

Table B-11

Summing over the rows labeled "Total" for both groups, we obtain the following results:

Total Movement Quarter 2, Fiscal 1975 - Quarter 2, Fiscal 1976 is,

HRAV Units + .7099

Non-HRAV Units - .1843

Test of Hypothesis Number Two Using Two Way Analysis of Variance Techniques. [Ref. 20]

Hypothesis Number Two stated that no statistically significant change would occur in units having participated in an HRAV as compared to a control group of similar units that had not participated in an HRAV. It was further stated in the text that rejection of this hypothesis would indicate some influence of the HRAV and that a "t" test showing positive difference would verify that influence.

Because units in the two groups (see Table B-11) were selected randomly (with no other criteria than that some had experienced the HRAV and some had not during the period of observation) it was thought that the analysis of variance technique results would be more meaningful if the retention scores obtained by the selected units in each quarter were adjusted for unit size. By such adjustment, the inequalities inherent in comparison of large units with small units would be eliminated. This adjustment was made by dividing the number of personnel reenlisted by units in both groups by the estimated size of the compliment for each unit for each of the fiscal quarters observed. The estimated complement size was obtained from Ref. 18, and are as follows:

Unit	Estimated Complement
1	490
2	213
10	274
12	247
19	247
23	247
3	354
4	245
5	1680
6	1698
8	247
18	354

Each estimated complement was then divided by 100 arbitrarily to make the numbers more reasonable. Using these corrected estimated complement figures as divisors and the number of personnel reenlisted as the dividend for each unit in each quarter observed, the following table resulted:

ANOVA FOR TESTING HYPOTHESIS NUMBER TWO

Time Quarter/ Fiscal Year	Units Observed						
	HRAV Units						
	1	2	10	12	19	23	Total
2/75	1.02	4.23	.18	1.21	.81	1.21	8.66
3/75	.41	1.88	.18	2.02	3.64	1.62	9.75
4/75	1.02	.94	1.46	2.43	.41	2.43	8.69
1/76	1.02	2.82	2.92	.81	1.62	1.62	10.81
2/76	.82	2.35	3.65	2.43	.41	2.42	12.08
Experiment Sub-total	4.29	12.22	8.39	8.90	6.89	9.30	49.99
	Non-HRAV Units						
	3	4	5	6	8	18	
2/75	3.95	1.63	1.13	.82	2.83	2.82	13.18
3/75	1.63	0.00	1.13	1.06	3.24	1.69	8.75
4/75	1.13	5.31	1.79	.94	2.43	1.41	13.01
1/76	2.83	2.45	1.25	1.53	.81	.56	9.43
2/76	2.82	2.04	1.07	1.41	2.83	1.69	11.86
Control Sub-total	12.36	11.43	6.37	5.76	12.14	8.17	56.23
Totals for the Table	16.65	23.65	14.76	14.66	19.03	17.47	106.22

Table B-12

Results of Two-way Analysis of Variance for table B-12

Mean Square (time periods) = 0.02433
Mean Square (units) = 1.378772
Mean Square (group) = 0.8376
Mean Square (interaction) = 1.9842
Mean Square (error) = 1.1116
F = 0.7858
p > 0.20

Exhibit 3

Data and Calculations for Annual Supply Inspections

The period of observation was 1 September 1974 through 30 April 1976. Twenty-four units were observed, twelve of whom had participated in an HRAV and twelve of whom had not. The criteria for selection of the units observed were,

1. That all units had experienced at least two consecutive Annyal Supply Inspections (ASI's) during the period of observation, and

2. That the experiment group all participated in an HRAV some time between the two consecutive ASI's, and

3. That the control group all did not experience HRAV's either before or during the period of observation.

In the following pages, the data and calculations are tabulated in the same form as were the data for retention shown in Exhibit 2. The same calculations are used for these data as were used for the retention data.

ASI Data and Calculations - HRAV Units First Inspection

Unit	X	$X - \bar{X}$	$(X - \bar{X})^2$	$t = (X - \bar{X})/S$
1	90.80	4.79	22.9441	.6404
2	90.20	4.19	17.5561	.5602
3	97.10	11.09	122.9881	1.4826
4	86.49	.48	.2304	.0642
5	75.60	- 10.41	108.3681	- 1.3917
6	72.58	- 13.43	180.3649	- 1.7955
7	80.75	- 5.26	27.6676	- .7032
8	81.50	- 5.51	30.3601	- .7366
9	89.16	3.18	10.1124	.4251
10	82.94	- 3.07	9.4249	- .4104
11	91.56	5.55	30.8025	.7420
12	93.40	7.39	54.6121	.9880
Total	1032.08		615.4313	

Table B-13

$n = 12$

$\bar{X}$ = Total X/n = $1032.08/12 = 86.01$

Total $(X - \bar{X})^2 = 615.4313$

$S = (\text{Total } (X - \bar{X})^2/(n - 1))^{\frac{1}{2}}$

$S = (615.4313/11)^{\frac{1}{2}} = 7.48$

ASI Data and Calculations - HRAV Units Second Inspection

Unit	X	$X - \bar{X}$	$(X - \bar{X})^2$	$t = (X - \bar{X})/S$
1	80.70	- 3.62	13.1044	- .5701
2	79.75	- 4.57	20.8849	- .7197
3	82.56	- 1.88	3.5344	- .2961
4	91.00	6.68	44.6224	1.0520
5	85.80	1.48	2.1904	.2331
6	74.00	- 10.32	106.5024	- 1.6252
7	76.79	- 7.53	56.7009	- 1.1858
8	87.30	2.98	8.8804	.4693
9	93.06	8.74	76.3876	1.3764
10	90.10	5.78	33.4084	.9102
11	91.46	7.14	50.9796	1.1244
12	89.41	5.09	25.9081	.8016
Total	1011.93		443.1039	

Table B-14

$n = 12$

$\bar{X}$ = Total X/n = 1011.93/12 = 84.32

Total $(X - \bar{X})^2$ = 443.1039

$S = (\text{Total } (X - \bar{X})^2/(n - 1))^{\frac{1}{2}}$

$S = (443.1039/11)^{\frac{1}{2}} = 6.35$

ASI Data and Calculations - Non-HRAV Units First Inspection

Unit	X	$X - \bar{X}$	$(X - \bar{X})^2$	$t = (X - \bar{X})/S$
13	87.53	1.25	1.5625	.2111
14	86.31	.03	.0009	.0051
15	91.23	4.95	24.5025	.8361
16	77.00	- 9.28	86.1184	- 1.5676
17	87.88	1.60	2.5600	.2703
18	84.48	- 1.80	3.2400	- .3041
19	82.08	- 4.20	17.6400	- .7095
20	87.10	.82	.6724	.1385
21	74.84	- 11.44	130.8736	- 1.9324
22	91.24	4.96	24.6016	.8378
23	91.14	4.86	23.6196	.8209
24	94.62	8.34	69.5556	1.4088
Total	1035.45		384.9471	

Table B-15

$n = 12$

$\bar{X}$ = Total X/n = $1035.45/12 = 86.28$

Total $(X - \bar{X})^2 = 384.9471$

$S = (\text{Total } (X - \bar{X})^2/(n - 1))^{\frac{1}{2}}$

$S = (384.9471/11)^{\frac{1}{2}} = 5.92$

ASI Data and Calculations - Non-HRAV Units Second Inspection

Unit	X	$X - \bar{X}$	$(X - \bar{X})^2$	$t = (X - \bar{X})/S$
13	88.58	1.55	2.4025	.2860
14	85.24	- 1.79	3.2041	- .3303
15	91.50	4.47	19.9809	.8247
16	85.88	- 1.15	1.3225	- .2122
17	90.98	3.95	15.6025	.7288
18	85.08	- 1.95	3.8025	- .3598
19	91.28	4.25	18.0625	.7841
20	86.18	- .85	.7225	- .1568
21	71.59	- 15.44	238.3936	- 2.8487
22	89.42	2.39	5.7121	.4410
23	90.72	3.69	13.6161	.6808
24	87.96	.93	.8649	.1716
Total	1044.41		323.6867	

Table B-16

$n = 12$

$\bar{X}$ = Total X/n = 1044.41/12 = 87.03

Total $(X - \bar{X})^2 = 323.6867$

$S = (\text{Total } (X - \bar{X})^2/(n - 1))^{\frac{1}{2}}$

$S = (323.6867/11)^{\frac{1}{2}} = 5.42$

ASI Data Summary and Unit Movement

HRAV Units

Unit	ASI #1 t Score	ASI #2 t Score	Difference (Movement)
1	.6404	- .5701	- 1.2105
2	.5602	- .7179	- 1.2781
3	1.4826	- .2961	- 1.7787
4	.0642	1.0520	.9878
5	- 1.3917	.2331	1.6248
6	- 1.7955	- 1.6252	.1703
7	- .7032	- 1.1858	- .4826
8	- .7366	.4693	1.1059
9	.4251	1.3764	.9513
10	- .4104	.9102	1.3206
11	.7420	1.1244	.3824
12	.9880	.8016	- .1864
Total	- .1349	1.5719	1.6068

Non-HRAV Units

13	.2111	.2860	.0749
14	.0051	- .3303	- .3354
15	.8361	.8247	- .0114
16	- 1.5676	- .2122	1.3554
17	.2703	.7288	.5585
18	- .3041	- .3598	- .0557
19	- .7095	.7841	1.4936
20	.1385	- .1568	- .2953
21	- 1.9324	- 2.8487	- .9163
22	.8378	.4410	- .3968
23	.8209	.6808	- .1401
24	1.4088	.1716	- 1.2372
Total	.0150	.0092	.0942

Table B-17

From the summarized data in the table above, the average motion in the positive direction for the HRAV units is greater than that for the non-HRAV units by a factor of multiplication equal to 17.057.

Using the raw scores obtained for both groups for both periods of observation, the following table resulted:

ANOVA FOR TESTING HYPOTHESIS NUMBER TWO (ASI)

Time First-Second Inspection	Units Observed HRAV Units 1	2	3	4	5	6
1	90.80	90.20	97.00	86.49	75.60	72.58
2	80.70	79.75	82.56	91.00	85.80	74.00
Subtotal	171.50	169.95	179.56	177.49	161.40	146.58

HRAV Units (continued)

7	8	9	10	11	12	Total
80.75	81.50	89.16	82.94	91.56	93.40	1031.98
76.79	87.30	93.06	90.10	91.46	89.41	1021.93
157.54	168.80	182.22	173.04	183.02	182.81	2053.91

Time First-Second Inspection	Units Observed Non-HRAV Units 1	2	3	4	5	6
1	87.53	86.31	91.23	77.00	87.88	84.48
2	88.58	85.24	91.50	85.88	90.98	85.08
Subtotal	176.11	171.55	182.73	162.88	178.86	169.56

Non-HRAV Units (continued)

7	8	9	10	11	12	Total
82.08	87.10	74.84	91.24	91.14	94.62	1035.45
91.28	86.18	71.59	89.42	90.72	87.96	1044.41
173.36	173.28	146.43	180.66	181.86	182.58	2079.86

Column and Row Grand Totals

1	2	3	4	5	6	7	8
347.61	341.50	362.29	340.37	340.26	316.14	330.90	342.08

Column and Row Grand Totals (continued)

9	10	11	12	Total
328.65	353.70	364.88	365.39	4133.77

Table B-18

Results of Two-way Analysis of Variance for table B-18

Mean Square (time periods) = 0.02475
Mean Square (units) = 45.4222
Mean Square (group) = 20.3974
Mean Square (interaction) = 28.3105
Mean Square (error) = 40.6925
F = 0.5012
$p > 0.20$

TABLE OF ABBREVIATIONS

TERM	MEANING
AAP	Equal Opportunity Affirmative Action Plan
ALNAV	All United States Navy commands
ASI	Annual Supply Inspection
CA	California
CAP	Command Action Plan
CDR	Commander, United States Navy
CINC	Commander in Chief
CINCLANTFLT	Commander in Chief, U.S. Atlantic Fleet
CINCPACFLT	Commander in Chief, U.S. Pacific Fleet
CINCUSNAVEUR	Commander in Chief, U.S. Naval Forces, Europe
CNET	Chief of Naval Education and Training
CNO	Chief of Naval Operations
CNP	Chief of Naval Personnel
C.O.	Commanding Officer
CTT	Command Training Team
D.C.	District of Columbia
E5	U.S. Navy Enlisted Personnel, paygrade five
HI	Hawaii
HRAV	Human Resource Availability
HRM	Human Resource Management
HRMC	Human Resource Management Center
HRMC/D	Human Resource Management Center/Detachment
HRM CYCLE	Human Resource Management Cycle

HRMD - Human Resource Management Detachment

HRM School - Human Resource Management School, Memphis, Tennessee

HRM Specialist - Human Resource Management Specialist

HRMSS - Human Resource Management Support System

HRMST - Human Resource Management Support Team

HRM Survey - Human Resource Management Survey

ISIC - Immediate Superior in Command

LANTFLT - U.S. Atlantic Fleet

LCDR - Lieutenant Commander, United States Navy

Leading HRM Specialist - HRM Specialist assigned primary responsibility to provide HRAV services to a given unit

LT - Lieutenant, United States Navy

LTJG - Lieutenant (junior grade), United States Navy

NAVPERS - Bureau of Naval Personnel

NAVY - United States Navy

NJP - Non-judicial Punishment

NPRDC - Naval Personnel Research and Development Center, San Diego, California

OPNAV - Office of the Chief of Naval Operations

OPNAVINST - Instruction orginated by the Chief of Naval Operations (generally applicable to the entire Navy)

OP-01P - Assistant Deputy Chief of Naval Operations for Human Goals

PHASE II - The U.S. Navy Equal Opportunity/Race Relations Program

PERS-6 - Office within the Bureau of Naval Personnel responsible for HRMSS matters

R.I. - Rhode Island

U.K. - United Kingdom

U.S. - United States of America

VA - Virginia

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